

3. Upon information and belief, LG USA is a corporation organized under the laws of the State of Delaware, with regular and established places of business in Texas at least at 21251-2155 Eagle Parkway, Fort Worth, Texas 76177; 14901 Beach St, Fort Worth, TX 76177; and 9420 Research Blvd, Austin, Texas 78759. LG USA has at least one regular and established places of business in this District.

4. Upon information and belief, LG KR was spun off from its predecessor LG Electronics Investment Ltd. in 2002. LG and its subsidiaries are made up of five business segments: Home Appliance & Air Solutions, Home Entertainment, Mobile Communications, Vehicle component Solutions and Business Solutions. The Mobile Communications segment of LG “manufactures and sells mobile communication equipment,” including importing, distributing, and selling mobile phones in the U.S. *See Consolidated Interim Financial Statements*, LG ELECTRONICS, INC. (September 20, 2019), at p. 9, *available at* https://www.lg.com/global/pdf/ir_report/LGE_19%203Q_consolidated_f_signed.pdf. LG is a publicly traded company and is listed on the Korea stock exchange.

5. LG KR maintains a corporate presence in the United States via at least its wholly-owned, U.S.-based sales subsidiary LG USA, which is organized under the laws of Delaware with its principal place of business located at 1000 Sylvan Avenue, Englewood Cliffs, NJ, 07632, USA. Upon information and belief, LG USA also owns and controls LG Electronics Alabama, Inc. (an Alabama corporation) and LG Electronics Mobilecomm USA, Inc. (a California corporation, referred to herein as “LG Mobilecomm”). In 2018, LG Mobilecomm was merged into LG USA.

6. Upon information and belief, LG KR and its U.S.-based subsidiaries (which act as part of a global network of overseas sales and manufacturing subsidiaries on behalf of LG) have operated as agents of one another and vicariously as parts of the same business group to work in

concert together and enter into agreements that are nearer than arm's length. For example, LG KR, alone and via at least LG USA's activities, conducts business in the United States, including importing, distributing, and selling mobile phones that incorporate devices, systems, and processes that infringe the Asserted Patents in Texas and this judicial district. *See Trois v. Apple Tree Auction Center, Inc.*, 882 F.3d 485, 490 (5th Cir. 2018) ("A defendant may be subject to personal jurisdiction because of the activities of its agent within the forum state...."); *see also Cephalon, Inc. v. Watson Pharmaceuticals, Inc.*, 629 F. Supp. 2d 338, 348 (D. Del. 2009) ("The agency theory may be applied not only to parents and subsidiaries, but also to companies that are 'two arms of the same business group,' operate in concert with each other, and enter into agreements with each other that are nearer than arm's length.").

7. Through offers to sell, sales, imports, distributions, and other related agreements to transfer ownership of LG's mobile phones with distributors and customers operating in and maintaining a significant business presence in the U.S. and/or its U.S. subsidiary LG USA, LG does business in the U.S., the state of Texas, and in the Eastern District of Texas.

JURISDICTION AND VENUE

8. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

9. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

10. Upon information and belief, LG KR is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and judicial district, including: (A) at least part of its infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent

conduct, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to Texas residents vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. For example, LG has “operations in more than 100 locations around the world” in a group made up of 134 subsidiaries (among other associates and joint ventures), including those subsidiaries having a significant business presence in the U.S. *See Company Information*, LG ELECTRONICS, INC., <https://www.lg.com/global/investor-relations-company-info> (last visited Feb. 27, 2020).

11. This Court has personal jurisdiction over LG KR, directly or through intermediaries, distributors, importers, customers, subsidiaries, and/or consumers including its U.S. based, wholly-owned subsidiary, LG USA. Through direction and control of this subsidiary, LG KR has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over LG KR would not offend traditional notions of fair play and substantial justice.

12. LG USA is a wholly owned subsidiary of LG. *See Consolidated Interim Financial Statements*, LG ELECTRONICS, INC. (September 20, 2019), at pp. 16-17, *available at* https://www.lg.com/global/pdf/ir_report/LGE_19%203Q_consolidated_f_signed.pdf. LG KR describes LG USA’s major business as its “sales of electronic products” in the United States. *Id.* Upon information and belief, LG KR has a 100% controlling ownership interest in LG USA and maintains more than half of LG USA’s voting rights as its basis for control. *Id.* Upon information and belief, LG compensates LG USA for its sales support services in the United States. As such, LG has a direct financial interest in LG USA, and vice versa.

13. With respect to the Asserted Patents, the Accused Products comprise LG mobile phones and devices that have wireless charging capability, such devices include, but are not limited to, the LG G4, LG G6, LG G6+, LG G7, LG G7 One, LG G8, LG G8X, LG G8S, LG V30, LG V30+, LG V30S ThinQ, LG V35 ThinQ, LG V40 ThinQ, LG V50S, LG V50 ThinQ, and LG V50. Upon information and belief, LG KR controls or otherwise directs and authorizes all activities of LG USA, including LG USA's using, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the Asserted Patents. LG USA is authorized to import, distribute, sell, or offer for sale the Accused Products on behalf of its controlling parent LG KR. For example, LG KR researches, designs, develops, and manufactures mobile phones and then directs LG USA to import, distribute, offer for sale, and sell the Accused Products in the United States. *See, e.g., United States v. Hui Hsiung*, 778 F.3d 738, 743 (9th Cir. 2015) (finding that the sale of infringing products to third parties rather than for direct import into the U.S. did not "place [defendants'] conduct beyond the reach of United States law [or] escape culpability under the rubric of extraterritoriality"). Furthermore, LG USA also administers, on behalf of LG, requests for service under and any disputes arising from LG's limited warranty of LG's products sold in the U.S., including in Texas and this judicial district. *See, e.g., User Guide LG G7 ThinQ, LM-G210TM*, LG, pp. 202-204, available at <http://gscs-b2c.lge.com/downloadFile?fileId=EnTAsmzn9Y5WNZqf0T7sQ> ("Procedure for Resolving Disputes" under LG's Limited Warranty. Thus, LG USA conducts infringing activities on behalf of LG.

14. Upon information and belief, LG USA's corporate presence in the United States gives LG substantially the business advantages that it would have enjoyed if it conducted its business through its own offices or paid agents in the state. Upon information and belief, LG USA is

authorized to import, distribute, sell, and offer for sale LG's products, including mobile phones incorporating infringing devices and processes, on behalf of LG KR. For example, LG USA operates within LG's global network of sales subsidiaries in North and South America, Europe, Asia, Africa, and the Middle East. In the U.S., including within the Eastern District of Texas, LG's mobile phones, which incorporate infringing devices and processes, are imported, distributed, offered for sale, and sold.

15. Via LG's alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers maintaining a business presence, operating in, and/or residing in the U.S., LG's products, including products and processes accused of infringing the Asserted Patents are or have been widely distributed and sold in retail stores, both brick and mortar and online, in Texas including within this judicial district. *See Litecubes, LLC v. Northern Light Products, Inc.*, 523 F.3d 1353, 1369-70 (Fed. Cir. 2008) ("[T]he sale [for purposes of § 271] occurred at the location of the buyer."); *see also Semcon IP Inc. v. Kyocera Corp.*, No. 2:18-cv-00197-JRG, 2019 WL 1979930, at *3 (E.D. Tex. May 3, 2019) (denying accused infringer's motion to dismiss because plaintiff sufficiently plead that purchases of infringing products outside of the United States for importation into and sales to end users in the U.S. may constitute an offer to sell under § 271(a)). For example, LG devices are sold to end users by LG's subsidiaries, distributors, and customers, including, but not limited to, LG USA, online and at retail stores located throughout the Eastern District of Texas.

16. Upon information and belief, LG KR has placed and continues to place infringing products and/or products that practice infringing processes into the stream of commerce via established distribution channels comprising at least subsidiaries and distributors, such as LG USA, and customers, with the knowledge and/or intent that those products are and/or will be

imported, used, offered for sale, sold, and continue to be sold in the United States and Texas, including in this judicial district. For example, in 2018, LG reported 16,208 billion KRW (about 13.42 billion USD) in world-wide net sales in its Mobile Communications division. *See Consolidated Financial Statements*, LG ELECTRONICS, INC. (December 31, 2018), at p. 58, available at https://www.lg.com/global/pdf/ir_report/LGE_18%204Q_consolidated_f_signed.pdf. Of that amount, LG USA (combined with LG Mobilecomm) had 12,184 billion KRW (about 10.09 billion USD) in U.S. sales of LG products and services. *See id.* at p. 24. As a result, LG has, vicariously through and/or in concert with its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers, placed infringing LG devices and related wireless network services into the stream of commerce via established distribution channels with the knowledge and/or intent that those products were sold and continue to be sold in the United States and Texas, including in this judicial district.

17. In the alternative, the Court has personal jurisdiction over LG KR under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, LG KR is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over LG KR is consistent with the U.S. Constitution.

18. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, LG KR is not a resident in the United States, and thus may be sued in any judicial district, including this one, pursuant to 28 U.S.C. § 1391(c)(3). *See In re HTC Corp.*, 889 F.3d 1349, 1357 (Fed. Cir. 2018) (“The Court’s recent decision in *TC Heartland* does not alter” the alien-venue rule.).

19. On information and belief, LG USA is subject to this Court’s specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to

its substantial business in this State and judicial district, including: (A) at least part of its own infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to Texas residents. LG USA has conducted and regularly conducts business within the United States and this District. LG USA has purposefully availed itself to the privileges of conducting business in the United States, and more specifically in Texas and this District. LG USA has sought protection and benefit from the laws of the State of Texas by placing infringing products into the stream of commerce through an established distribution channel with awareness and/or intent that they will be purchased by consumers in this District.

20. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, LG USA has regular and established places of business in this District, including at least 21251-2155 Eagle Parkway, Fort Worth, Texas 76177 and 14901 Beach St, Fort Worth, TX 76177.

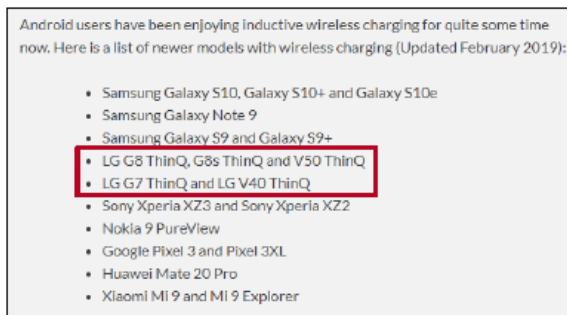
THE ASSERTED PATENTS AND TECHNOLOGY

21. The Asserted Patents were invented by employees of Panasonic Corporation (“Panasonic”). Founded in 1918, Panasonic has been at the forefront of the electronics industry for over a century. Panasonic made numerous innovations in the home appliance, battery, mobile phone, and television industries. Indeed, Panasonic’s invention of the “Paper Battery” in 1979 is widely credited as enabling the compact electronics of today. In 1991, Panasonic released the Mova P, the smallest and lightest mobile phone on the market, which revolutionized the industry by showing the demand for a compact, lightweight device. Panasonic also produced the first wide-format plasma display and developed the first digital television for the U.S. market. Panasonic’s

history of innovation is also borne out by its intellectual property. Indeed, a search of the USPTO database where the patent assignee is “Panasonic” yields over 27,000 matches.

22. Upon information and belief, LG derives a significant portion of its revenue from the manufacture and sale of mobile phones and tablets that the Asserted Patents cover.

23. The Accused Products, such as the LG G7 among other LG mobile phones, provide wireless charging capability.



<https://www.powermat.com/blog/android-wireless-charging/>

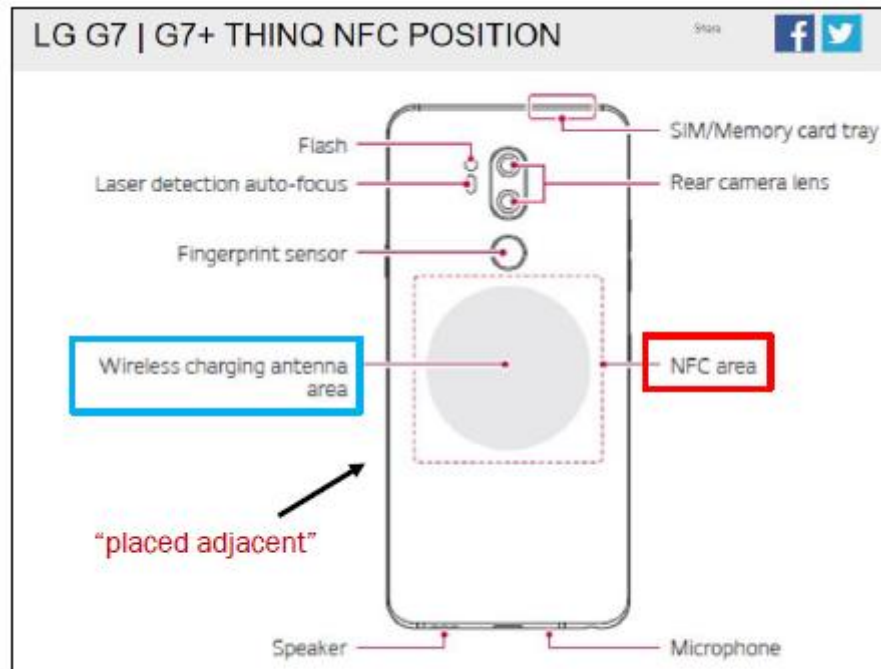
POWER & PERFORMANCE	
** Wireless charger sold separately.	
Battery Capacity	3,000 mAh Non-Removable
Internal Memory	64 GB (49,05 GB usable)***
Platform	Android 9.0 (Pie)
Qualcomm Quick Charge™ 3.0	3
Rated for Hearing Aids	M4, T3
Talk Time	Up to 20 hours (1200 minutes)*
Wireless Charging	With Compatible Dock**

<https://www.lg.com/us/cell-phones/lg-LMG710VM-g7-thinq-verizon>

24. The Accused Products each include a wireless charging module that has a substantially planar shape and includes a charging coil.

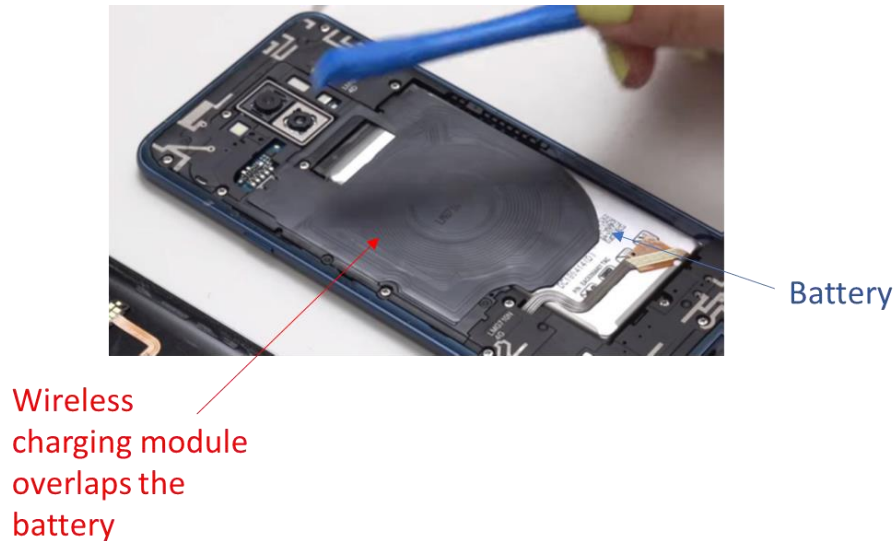


25. The Accused Products' wireless charging modules include a communication coil (e.g., an NFC antenna/area) placed adjacent to the charging coil.



https://www.lg.com/hk_en/nfc/lg-g7

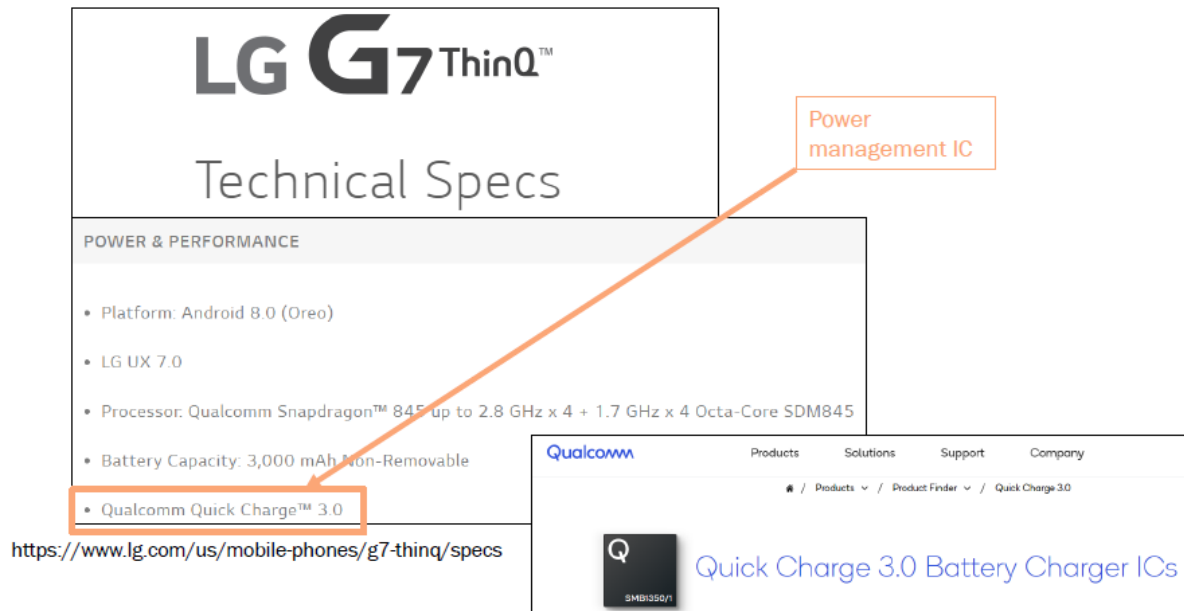
26. The Accused Products also each include a substantially planar shaped battery pack and a circuit board substrate. For example, the wireless charging module of the LG G7 overlaps with the battery pack.



27. The circuit boards in the Accused Products does not overlap the battery pack:



28. The Accused Products each includes a Qualcomm power management IC that functions as a power receiver circuit to wirelessly charge a battery.



29. The Accused Products' wireless charging modules, which provide a noncontact connector apparatus, are connected to the respective power receiving circuit.



30. A receiving coil of the noncontact connector apparatus provides a charging coil so that it is adjacent to a transmitter coil of a wireless charger. The receiver coil (e.g., the charging

coil) is electromagnetically coupled to the transmitter coil, when the charging coil is adjacent to the transmitter coil.



COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 9,935,481)

31. Plaintiff incorporates paragraphs 1 through 30 herein by reference.

32. SPV is the assignee of the '481 patent, entitled "Mobile Terminal Including Wireless Charging Module and Battery Pack," with ownership of all substantial rights in the '481 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

33. The '481 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '481 patent issued from U.S. Patent Application No. 14/376,574.

34. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '481 patent in this judicial district and elsewhere in Texas and the United States.

35. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See Cell Phones*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to “Shop by Carrier/Network” heading). LG’s mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g., LG V40 ThinQ™ Verizon Wireless*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

36. LG directly infringes the ’481 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the ’481 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the ’481 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the ’481 patent through its direct involvement in the activities of its subsidiaries, including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the ’481 patent under

35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

37. The Accused Products infringe the '481 patent including, for example, claim 1. The Accused Products support Qi-compliant wireless charging capability. The Accused Products are mobile terminals. For example, the LG G7 is a mobile phone.

38. The Accused Products include a wireless charging module including a charging coil formed of a wound conducting wire and a communication coil placed adjacent to the charging coil, the wireless charging module having a substantially planar shape, wherein a distance between the communication coil and the charging coil is non-uniform. The Accused Products support wireless charging according to the Qi wireless charging standard. For example, the G7 includes a wireless charging module (e.g., the power receiver) including a charging coil. The wireless charging module has a substantially planar shape. The charging coil is formed of a wound conducting wire. The wireless charging module of the LG G7 includes a communication coil (e.g., an NFC antenna/area), which is placed adjacent to the charging coil. The distance between the communication coil and charging coil is non-uniform.

39. The Accused Products comprise a battery pack having a substantially planar shape and configured to store power from the wireless charging module. The battery pack is configured to store power for the operation of the Accused Products.

40. The Accused Products comprise a circuit board substrate configured to control operation of the mobile terminal, wherein the wireless charging module overlaps with at least one of the circuit board substrate and the battery pack, and the circuit board substrate does not overlap with the battery pack. The wireless charging module overlaps with the battery pack, and its circuit board does not overlap the battery pack.



41. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

42. At a minimum, LG has known of the '481 patent at least as early as the service date of the original complaint in this matter on April 16, 2020. Further, on information and belief, LG has known of the '481 patent at least as early as the filing date of the original complaint. In addition,

LG has known about the '481 patent since at least April 14, 2020, when LG received a letter providing notice of its infringement. Further, on information and belief, LG's conduct before the United States Patent and Trademark Office ("USPTO") and foreign offices, suggest that it may have been aware of the '481 patent prior to receiving the letter. For example, in prosecuting U.S. Patent No. 9,553,476, LG disclosed the family associated with the '481 patent to the USPTO.

43. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '481 patent to directly infringe one or more claims of the '481 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '481 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network*, LG ELECTRONICS INC., <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that "[t]he company has been very active in the [North American] region as

an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

44. Upon information and belief, despite having knowledge of the ’481 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’481 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG’s infringing activities relative to the ’481 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

45. SPV has been damaged as a result of LG’s infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 9,620,282)

46. Plaintiff incorporates paragraphs 1 through 45 herein by reference.

47. SPV is the assignee of the ’282 patent, entitled “Noncontact Connector Apparatus and System Using Inductive Coupling Between Coils,” with ownership of all substantial rights in the ’282 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

48. The ’282 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The ’282 patent issued from U.S. Patent Application No. 13/983,617.

49. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '282 patent in this judicial district and elsewhere in Texas and the United States.

50. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See Cell Phones*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to "Shop by Carrier/Network" heading). LG's mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g., LG V40 ThinQ™ Verizon Wireless*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

51. LG directly infringes the '282 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '282 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '282 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '282 patent through its direct involvement in the activities of its subsidiaries,

including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '282 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

52. The Accused Products infringe the '282 patent including, at least, claim 10. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G7. Those Accused Products comprise the power transfer apparatus of claim 10. For example, the Accused Products, including the LG G7, wirelessly transfers power for charging.

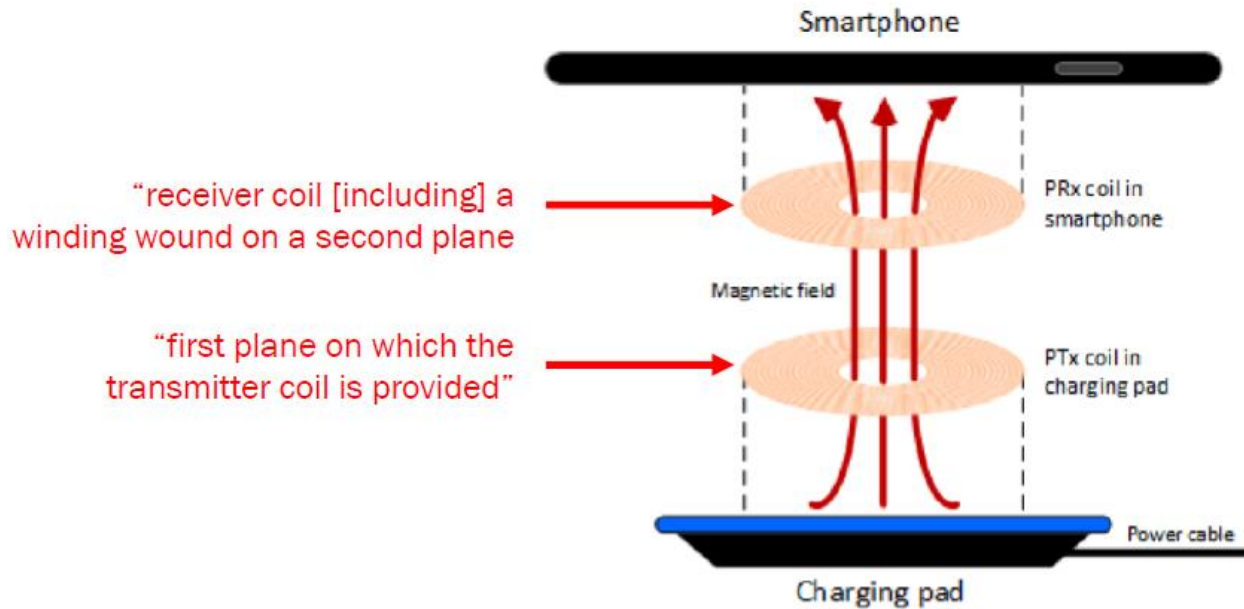
53. The Accused Products include a power receiver circuit. For example, the LG G7 includes a Qualcomm power management IC that functions as a power receiver circuit to charge the battery.

54. The Accused Products comprise a noncontact connector apparatus connected to the power receiver circuit. For example, the wireless charging module is connected to the power receiving circuit via contacts.

55. In the Accused Products, the noncontact connector apparatus comprises a receiver coil that is provided to be adjacent, so as to be electromagnetically coupled, to a transmitter coil. For example, the noncontact charging module comprises a receiver coil that is electromagnetically coupled to a transmitter coil when the phone is placed onto a wireless charging pad. The receiver coil is provided so that it is adjacent to a transmitter coil so as to be electronically coupled.



56. In the Accused Products, the receiver coil is configured to include a winding wound on a second plane that is opposed to be adjacent to the first plane on which the transmitter coil is provided. For example, the receiver coil in the Accused Products includes a winding wound on a second plane opposed to be adjacent to a first plane on which the transmitter coil is provided.



57. In the Accused Products, the noncontact connector apparatus comprises: a second magnetic body provided between the first plane and the second plane, the second magnetic body being provided to be adjacent, so as to be electromagnetically coupled, to the receiver coil and to cover at least one part of a region in which at least the winding of the receiver coil exists. For example, the Accused Products have a wireless charging module that has a second magnetic body (e.g. an insulating sheet). The insulating sheet is adjacent and electromagnetically coupled to the phone’s receiving coil and covers at least part of the coil winding. One side of the insulating sheet is provided between a second plane (on which the receiving coil is wound) and a first plane (on which the transmitter coil is provided).

58. In the Accused Products, the noncontact connector comprises a coupling coefficient between the transmitter coil and the receiver coil is set to be decreased by increasing the self-inductance of each of the transmitter coil and the receiver coil so that a frequency characteristic of transmission efficiency from the transmitter coil to the receiver coil changes from a double-peaked narrow-band characteristic to a single-peaked wide-band characteristic. For example, in a Qi compliant coil, such as the LG G7 receiver coil, self-inductance will increase due to existence of

a magnetic material. A coupling coefficient (k) between the transmitter coil and the receiver coil will be set to be decreased according to a mathematical relationship between the mutual inductance between the transmitter and receiver coil and the self-inductance of the transmitter and self-inductance of the receiver coil. A single-peaked wide-band characteristic is achieved by lowering coupling coefficient (k) by increasing self-inductances of each of the transmitter coil and receiver coil.

59. In the Accused Products, the noncontact connector comprises a center frequency of the double-peaked narrow-band characteristic is lower than a center frequency of the single-peaked wide-band characteristic. For example, the frequency characteristic of transmission efficiency from the transmitter coil has a center frequency of the double-peaked narrow-band characteristic that is lower than a center frequency of the single-peaked wide-band characteristic.

60. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

61. At a minimum, LG has known of the '282 patent at least as early as the service date of the original complaint in this matter on April 16, 2020. Further, on information and belief, LG has known of the '282 patent at least as early as the filing date of the original complaint. In addition, LG has known about the '282 patent since at least April 14, 2020, when LG received a letter providing notice of its infringement.

62. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '282 patent to directly infringe one or more claims of the '282 patent by using, offering for sale, selling,

and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '282 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network*, LG ELECTRONICS INC., <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that “[t]he company has been very active in the [North American] region as an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

63. Upon information and belief, despite having knowledge of the '282 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '282 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG’s infringing activities relative to the '282 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

64. SPV has been damaged as a result of LG's infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 9,991,735)

65. Plaintiff incorporates paragraphs 1 through 64 herein by reference.

66. SPV is the assignee of the '735 patent, entitled "Electronic Device Including Non-Contact Charging Module and Battery," with ownership of all substantial rights in the '735 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

67. The '735 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '735 patent issued from U.S. Patent Application No. 15/886,674.

68. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '735 patent in this judicial district and elsewhere in Texas and the United States.

69. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See Cell Phones*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to "Shop by Carrier/Network" heading). LG's mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g., LG V40 ThinQ™ Verizon Wireless*,

LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

70. LG directly infringes the '735 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '735 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '735 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '735 patent through its direct involvement in the activities of its subsidiaries, including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '735 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to

control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

71. The Accused Products infringe the '735 patent including, at least, claim 1. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G8. The Accused Products are electronic devices having communication capability. For example, the Accused Products have the ability to communicate with the cellular network.

72. The Accused products comprise a housing having a generally rectangular shape in a plan view of the housing. For example, the LG G8 shown below has a rectangular shape:



73. The Accused Products comprise a non-contact charging module included in the housing and including a wireless charging coil having a substantially planar shape and formed of a wound electrical wire. For example, the LG G8 includes such a coil:

Wireless charging coil has a substantially planar shape



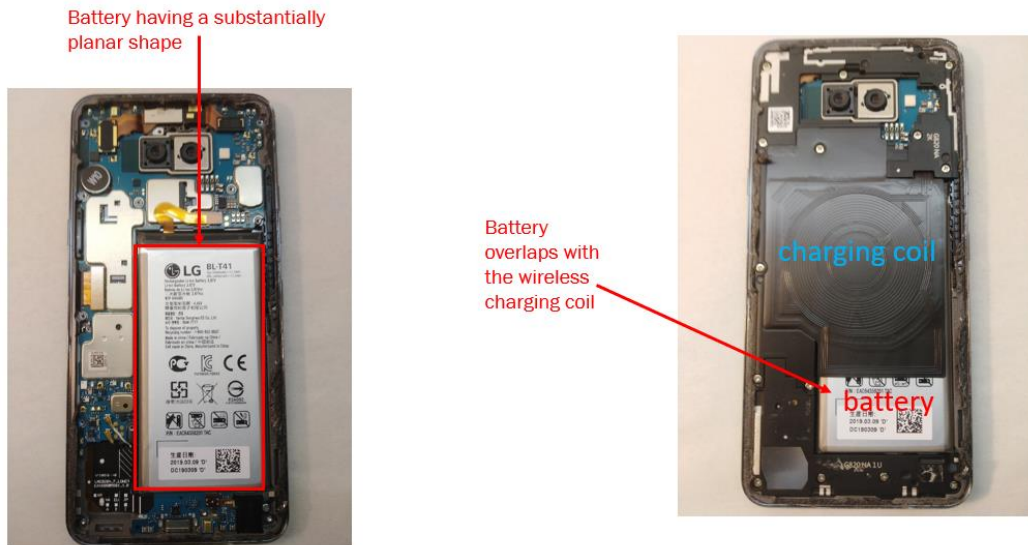
74. The non-contact charging module included in the housing of the Accused Products further includes a magnetic sheet that overlaps with the wireless charging coil in the plan view of the housing. For example, the magnetic sheet is located opposite the wireless charging coil.

Magnetic sheet



75. The Accused Products comprise a display arranged closer to the magnetic sheet than to the wireless charging coil of the non-contact charging module. The Accused Products, such as the LG G8 are configured such that the magnetic sheet is located between the wireless charging coil and the display. Accordingly, the display is closer to the magnetic sheet than to the wireless charging coil.

76. The Accused Products comprise a battery included in the housing and having a substantially planar shape that overlaps with the wireless charging coil of the non-contact charging module in the plan view of the housing, the battery being configured to receive power from the wireless charging coil of the non-contact charging module. For example, the battery in the LG G8 shown below is included in the housing and has a substantially planar shape that overlaps with the wireless charging coil of the non-contact charging module in the plan view of the housing. The battery in each of the Accused Products is configured to receive power from wireless charging.



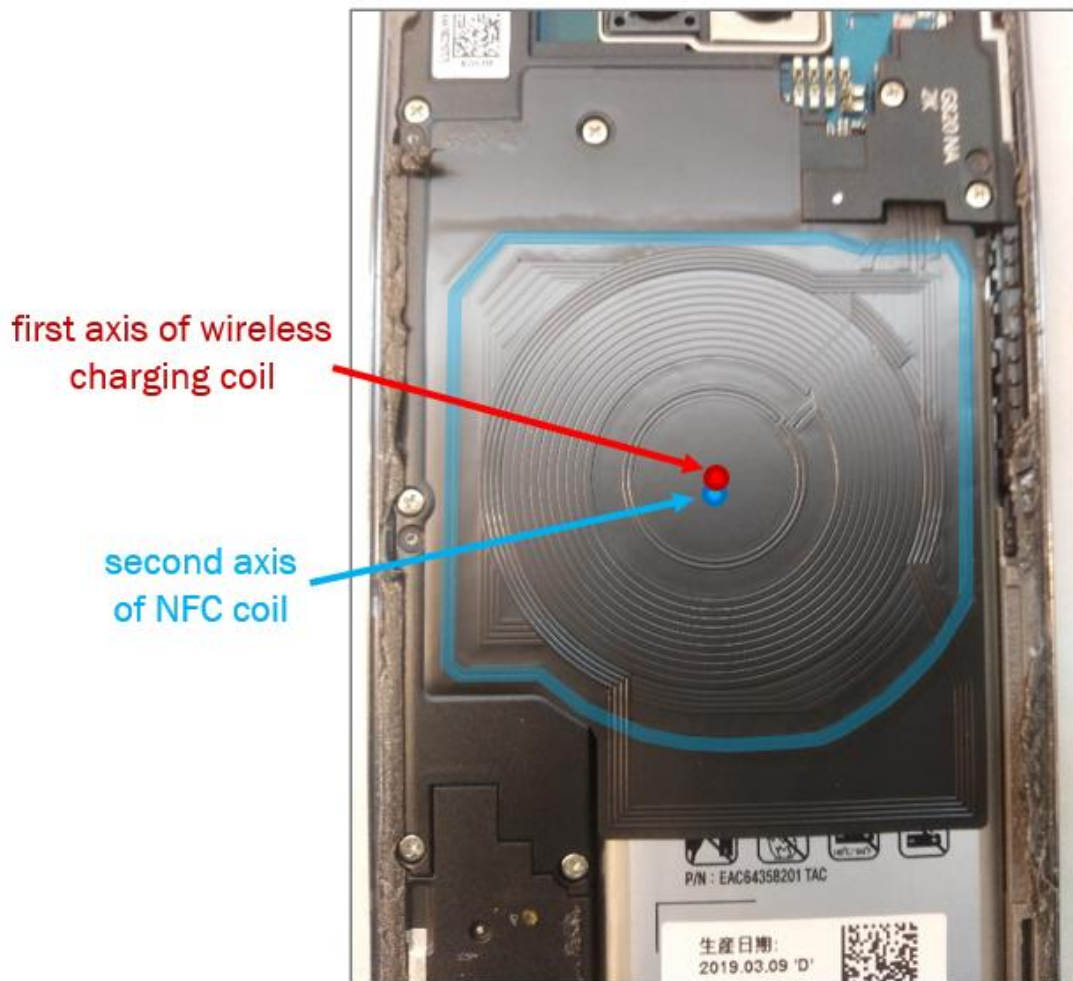
77. The Accused Products comprise a circuit board included in the housing and arranged to not overlap with the battery in the plan view of the housing. For example, the LG G8 shown below has the circuit board and battery arranged to not overlap:



78. The Accused Products comprise a Near Field Communication (NFC) antenna included in the housing and including an NFC coil formed of a wound electrical wire. For example, the LG G8 shown below includes an NFC antenna, which includes a wound electrical wire NFC coil:



79. The Accused Products are configured such that a first axis of the wireless charging coil is different from a second axis of the NFC coil. For example, the z-axis around which the wireless charging coil is wound is different from the z-axis around which the NFC coil is wound for the LG G8, as shown below:



80. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

81. At a minimum, LG has known of the '735 patent at least as early as the service date of the original complaint in this matter on April 16, 2020. Further, on information and belief, LG has known of the '735 patent at least as early as the filing date of the original complaint. In addition,

LG has known about the '735 patent since at least April 14, 2020, when LG received a letter providing notice of its infringement. Further, on information and belief, LG's conduct before the United States Patent and Trademark Office ("USPTO") and foreign offices, suggest that it may have been aware of the '735 patent prior to receiving the letter. For example, in prosecuting U.S. Patent No. 10,270,291, LG disclosed the family associated with the '735 patent to the USPTO.

82. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '735 patent to directly infringe one or more claims of the '735 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '735 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network*, LG ELECTRONICS INC., <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that "[t]he company has been very active in the [North American] region as

an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

83. Upon information and belief, despite having knowledge of the ’735 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’735 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG’s infringing activities relative to the ’735 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

84. SPV has been damaged as a result of LG’s infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IV

(INFRINGEMENT OF U.S. PATENT NO. 10,044,225)

85. Plaintiff incorporates paragraphs 1 through 84 herein by reference.

86. SPV is the assignee of the ’225 patent, entitled “Electronic Device Including Non-Contact Charging Module,” with ownership of all substantial rights in the ’225 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

87. The ’225 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The ’225 patent issued from U.S. Patent Application No. 15/883,773.

88. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '225 patent in this judicial district and elsewhere in Texas and the United States.

89. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See Cell Phones*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to "Shop by Carrier/Network" heading). LG's mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g., LG V40 ThinQ™ Verizon Wireless*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

90. LG directly infringes the '225 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '225 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '225 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '225 patent through its direct involvement in the activities of its subsidiaries,

including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '225 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

91. The Accused Products infringe the '225 patent including, at least, claim 1. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G8. The Accused Products are electronic devices having communication capability. For example, the Accused Products have the ability to communicate with the cellular network.

92. The Accused products comprise a housing having a generally rectangular shape in a plan view of the housing. For example, the LG G8 shown below has a rectangular shape:

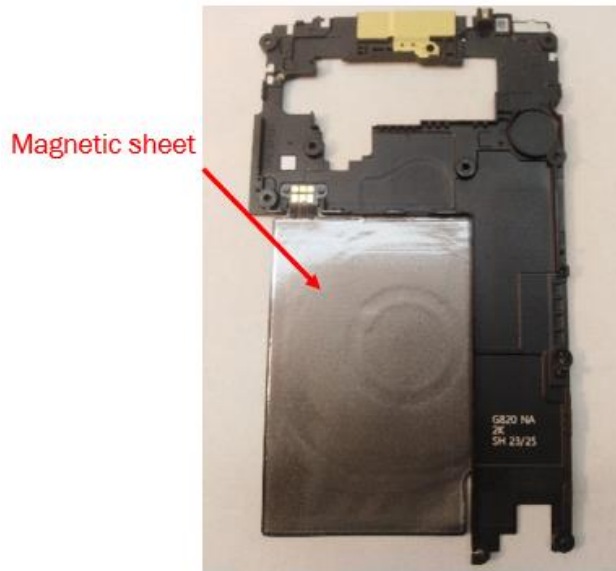


93. The Accused Products comprise a non-contact charging module included in the housing and including a wireless charging coil having a substantially planar shape and formed of a wound electrical wire. For example, the LG G8 includes such a coil:

Wireless charging coil has a
substantially planar shape



94. The non-contact charging module of the Accused Products further includes a magnetic sheet that overlaps with the wireless charging coil in the plan view of the housing. For example, the magnetic sheet is located opposite the wireless charging coil.



95. The Accused Products comprise a display arranged closer to the magnetic sheet than to the wireless charging coil of the non-contact charging module. The Accused Products, such as the LG G8 are configured such that the magnetic sheet is located between the wireless charging coil and the display. Accordingly, the display is closer to the magnetic sheet than to the wireless charging coil.

96. The Accused Products comprise a battery included in the housing and configured to receive power from the wireless charging coil of the non-contact charging module. For example, the battery in the LG G8 housing is shown below. The battery in each of the Accused Products is configured to receive power from wireless charging.



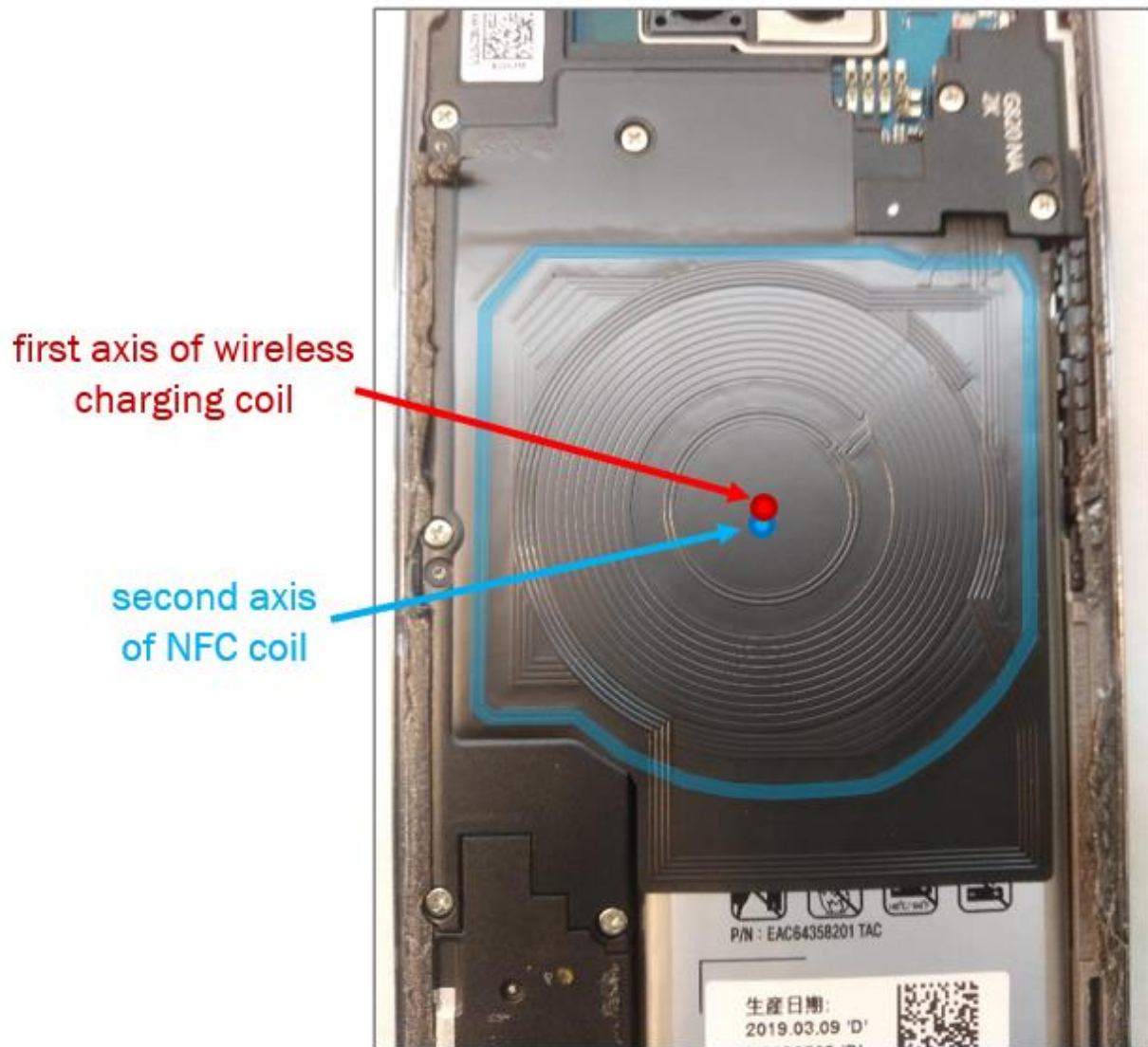
97. The Accused Products comprise a camera included in the housing. For example, the LG G8 contains multiple cameras, shown below:



98. The Accused Products comprise a Near Field Communication (NFC) antenna included in the housing and including an NFC coil formed of a wound electrical wire. For example, the LG G8 shown below includes an NFC antenna, which includes a wound electrical wire NFC coil:



99. The Accused Products are configured such that a first axis of the wireless charging coil is different from a second axis of the NFC coil. For example, the z-axis around which the wireless charging coil is wound is different from the z-axis around which the NFC coil is wound for the LG G8, as shown below:



100. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

101. At a minimum, LG has known of the '225 patent at least as early as the service date of the original complaint in this matter on April 16, 2020. Further, on information and belief, LG

has known of the '225 patent at least as early as the filing date of the original complaint. In addition, LG has known about the '225 patent since at least April 14, 2020, when LG received a letter providing notice of its infringement. Further, on information and belief, LG's conduct before the United States Patent and Trademark Office ("USPTO") and foreign offices, suggest that it may have been aware of the '225 patent prior to receiving the letter. For example, in prosecuting U.S. Patent No. 9,553,476, LG disclosed the family associated with the '225 patent to the USPTO.

102. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '225 patent to directly infringe one or more claims of the '225 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '225 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network, LG ELECTRONICS INC.*, <http://www.lgnewsroom.com/global-network/north-america/> (last visited

Mar. 3, 2020) (stating that “[t]he company has been very active in the [North American] region as an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

103. Upon information and belief, despite having knowledge of the ’225 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’225 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG’s infringing activities relative to the ’225 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

104. SPV has been damaged as a result of LG’s infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT V

(INFRINGEMENT OF U.S. PATENT NO. 10,291,069)

105. Plaintiff incorporates paragraphs 1 through 104 herein by reference.

106. SPV is the assignee of the ’069 patent, entitled “Mobile Terminal and Chargeable Communication Module,” with ownership of all substantial rights in the ’069 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

107. The ’069 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The ’069 patent issued from U.S. Patent Application No. 15/480,174.

108. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '069 patent in this judicial district and elsewhere in Texas and the United States.

109. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See* Cell Phones, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to “Shop by Carrier/Network” heading). LG’s mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g.,* LG V40 ThinQ™ Verizon Wireless, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

110. LG directly infringes the '069 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '069 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '069 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '069 patent through its direct involvement in the activities of its subsidiaries,

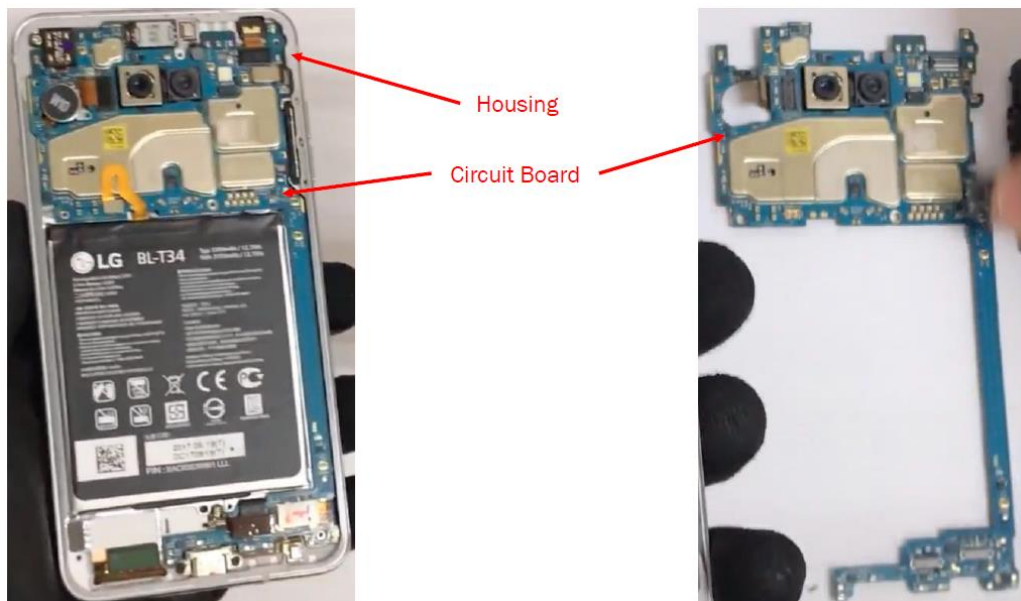
including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '069 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

111. The Accused Products infringe the '069 patent including, at least, claim 1. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G8 and V30. The Accused Products are mobile terminals. For example, the LG G8 and V30 are both cellular phones.

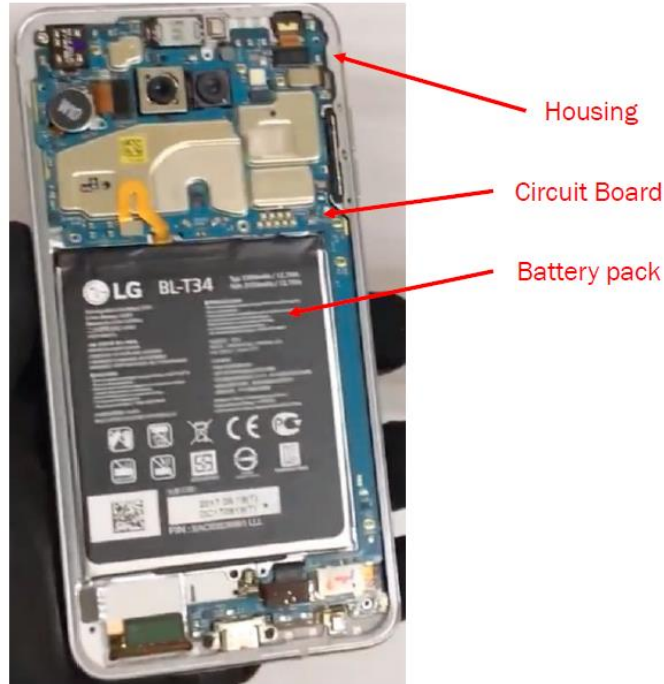
112. The Accused products comprise a housing. For example, the LG V30 shown below includes a housing that has a rectangular shape:



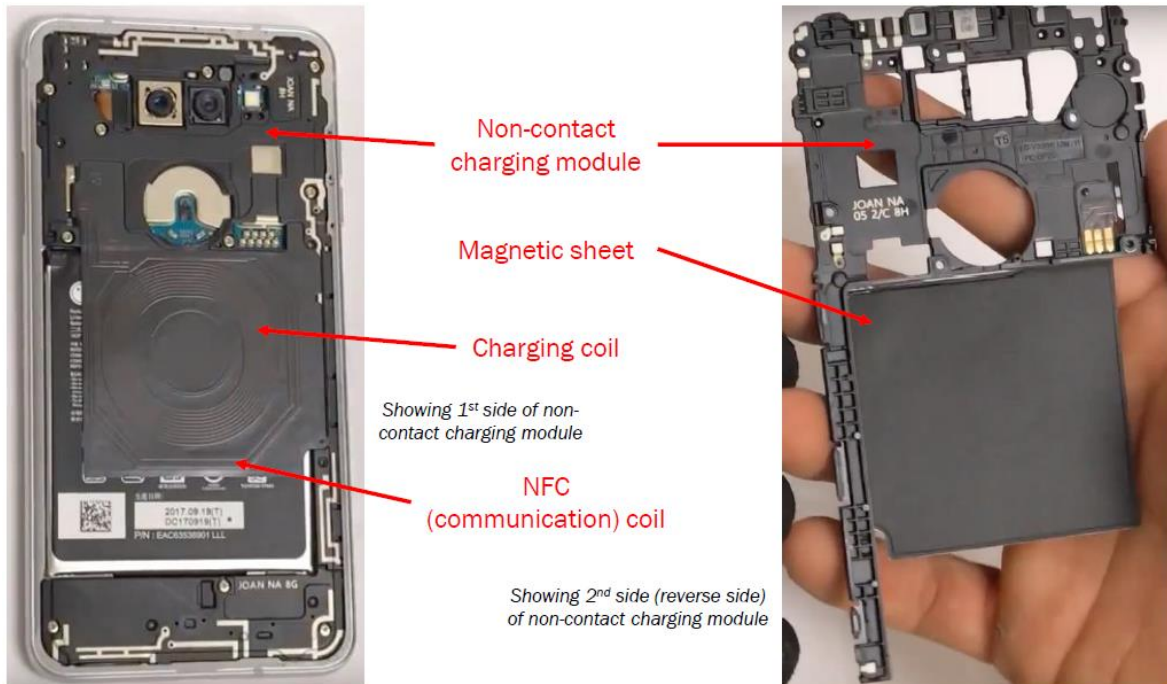
113. The Accused Products comprise a circuit board included in the housing and having a thickness direction normal to a plane of the circuit board. For example, the circuit board in LG V30 has a thickness direction perpendicular to the surface of the circuit board:



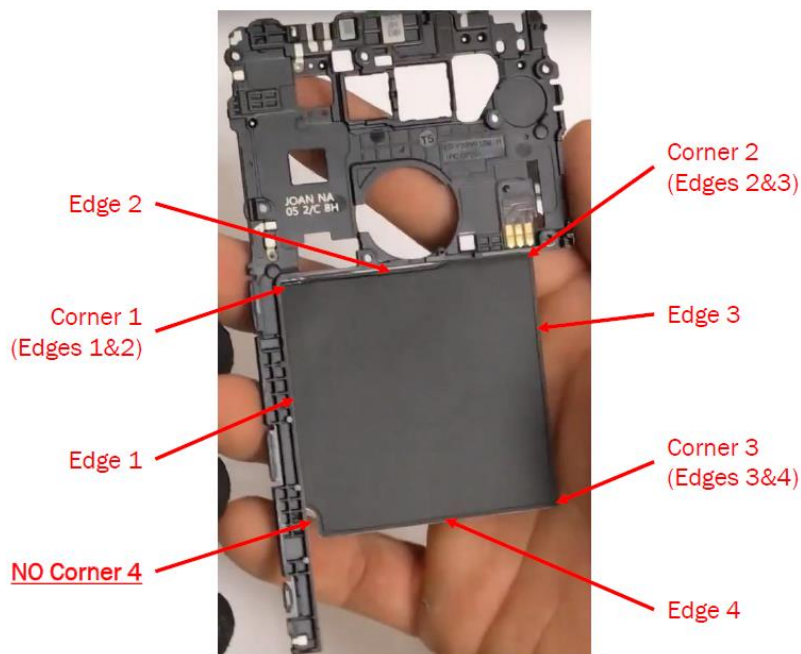
114. The Accused Products comprise a battery pack included in the housing. For example, the LG V30 contains the battery pack shown below:



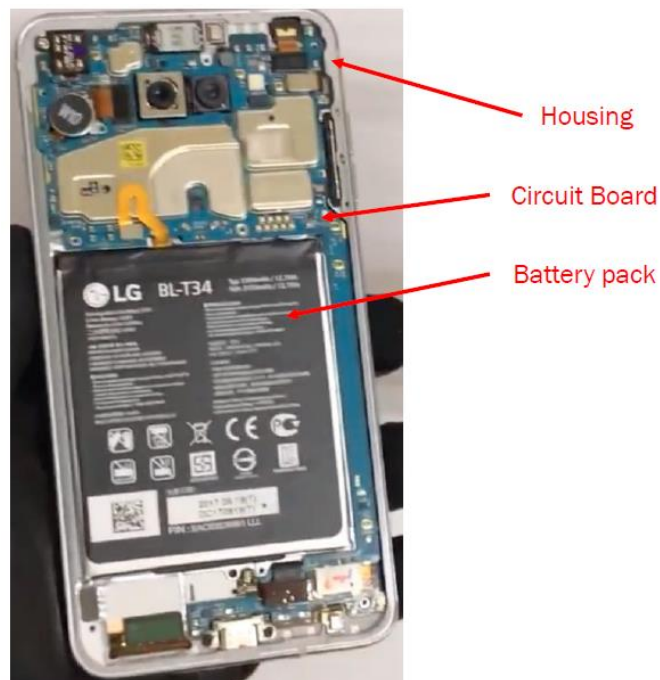
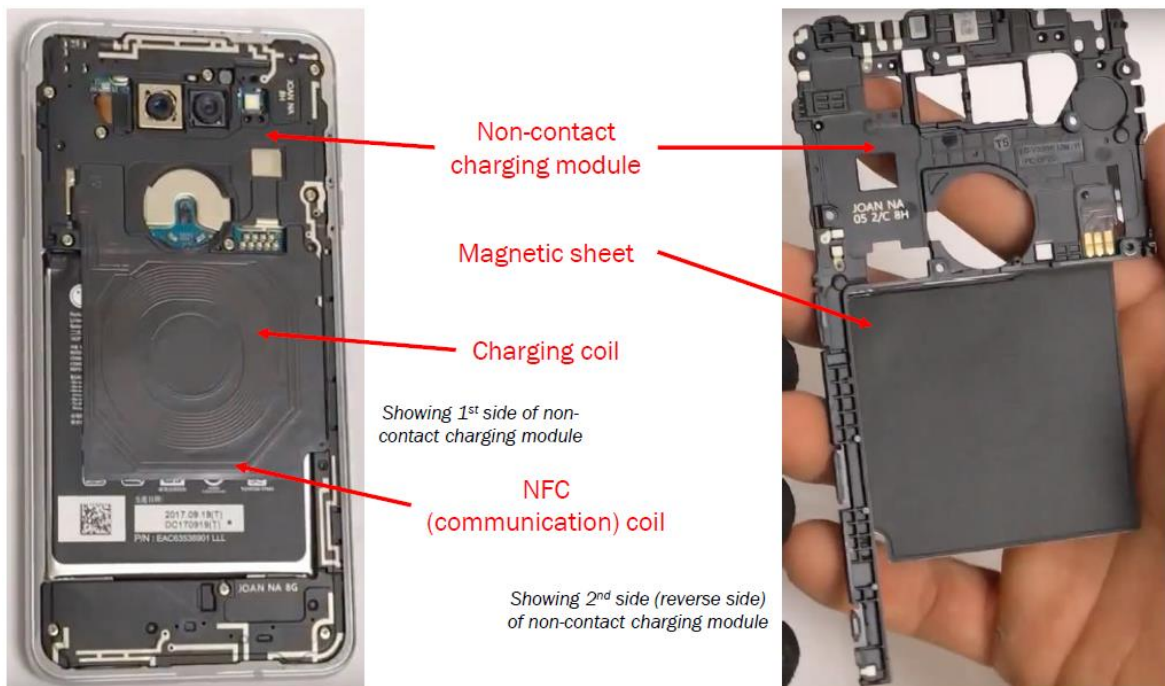
115. The Accused Products comprise a non-contact charging module included in the housing, including a charging coil formed of a wound conducting wire, a communication coil arranged adjacent to the charging coil, and a magnetic sheet on which the charging coil and the communication coil are arranged. For example, the LG V30 comprises a non-contact charging module in the housing that includes a charging coil formed of a wound conducting wire, a communication coil arranged adjacent to the charging coil, and a magnetic sheet on which the charging coil and the communication coil are arranged:



116. Within the Accused Products, the magnetic sheet has four edges that collectively define a rectangular profile of the magnetic sheet, and at most three pairs of adjacent edges respectively meet to form at most three corners. For example, the LG V30 contains the magnetic sheet shown below:



117. At least of portion of the non-contact charging module in the Accused Products overlaps with the circuit board as viewed in the thickness direction of the circuit board.



118. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

119. At a minimum, LG has known of the '069 patent at least as early as the service date of the original complaint in this matter on April 16, 2020. Further, on information and belief, LG has known of the '069 patent at least as early as the filing date of the original complaint. In addition, LG has known about the '069 patent since at least April 14, 2020, when LG received a letter providing notice of its infringement.

120. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '069 patent to directly infringe one or more claims of the '069 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '069 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network*, LG ELECTRONICS INC., <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that “[t]he company has been very active in the [North American] region as

an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

121. Upon information and belief, despite having knowledge of the ’069 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’069 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG’s infringing activities relative to the ’069 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

122. SPV has been damaged as a result of LG’s infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VI

(INFRINGEMENT OF U.S. PATENT NO. 10,574,082)

123. Plaintiff incorporates paragraphs 1 through 122 herein by reference.

124. SPV is the assignee of the ’082 patent, entitled “Electronic Device Including Non-Contact Charging Module and Battery,” with ownership of all substantial rights in the ’082 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

125. The ’082 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The ’082 patent issued from U.S. Patent Application No. 15/955,459.

126. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '082 patent in this judicial district and elsewhere in Texas and the United States.

127. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See Cell Phones*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to "Shop by Carrier/Network" heading). LG's mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g., LG V40 ThinQ™ Verizon Wireless*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

128. LG directly infringes the '082 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '082 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '082 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '082 patent through its direct involvement in the activities of its subsidiaries,

including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '082 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

129. The Accused Products infringe the '082 patent including, at least, claim 1. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G8. The Accused Products are electronic devices having communication capability. For example, the Accused Products have the ability to communicate with the cellular network.

130. The Accused products comprise a housing having a generally rectangular shape in a plan view of the housing. For example, the LG G8 shown below has a rectangular shape:

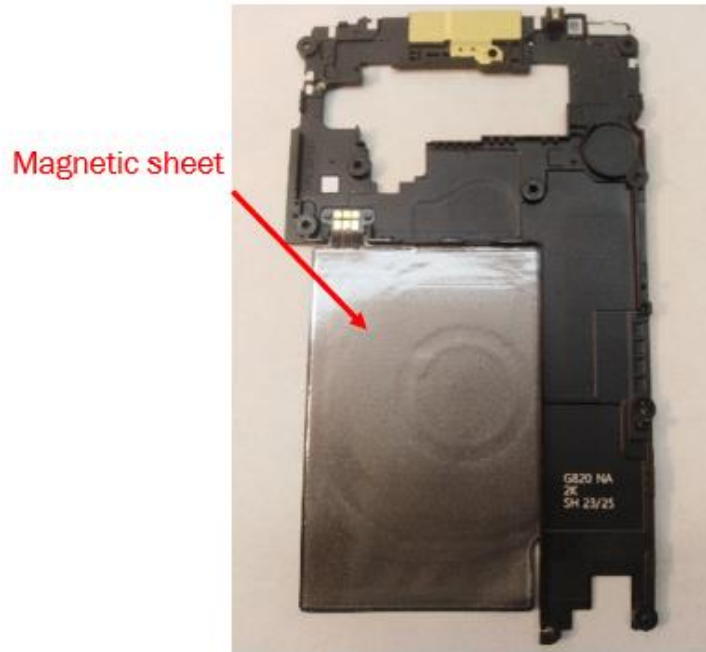


131. The Accused Products comprise a non-contact charging module included in the housing and including a wireless charging coil having a substantially planar shape and formed of a wound electrical wire. For example, the LG G8 includes such a coil:

Wireless charging coil has a
substantially planar shape



132. The non-contact charging module of the Accused Products further includes a sheet that overlaps with the wireless charging coil in the plan view of the housing. For example, the sheet is located opposite the wireless charging coil.



133. The Accused Products comprise a display arranged closer to the sheet than to the wireless charging coil of the non-contact charging module. The Accused Products, such as the LG G8 are configured such that the sheet is located between the wireless charging coil and the display. Accordingly, the display is closer to the sheet than to the wireless charging coil.

134. The Accused Products comprise a battery included in the housing and having a substantially planar shape that overlaps with the wireless charging coil of the non-contact charging module in the plan view of the housing, the battery being configured to receive power from the wireless charging coil of the non-contact charging module. For example, the battery in the LG G8 shown below is included in the housing and has a substantially planar shape that overlaps with the wireless charging coil of the non-contact charging module in the plan view of the housing. The battery in each of the Accused Products is configured to receive power from wireless charging.



135. The Accused Products comprise a circuit board included in the housing and arranged to not overlap with the battery in the plan view of the housing. For example, the LG G8 shown below has the circuit board and battery arranged to not overlap:

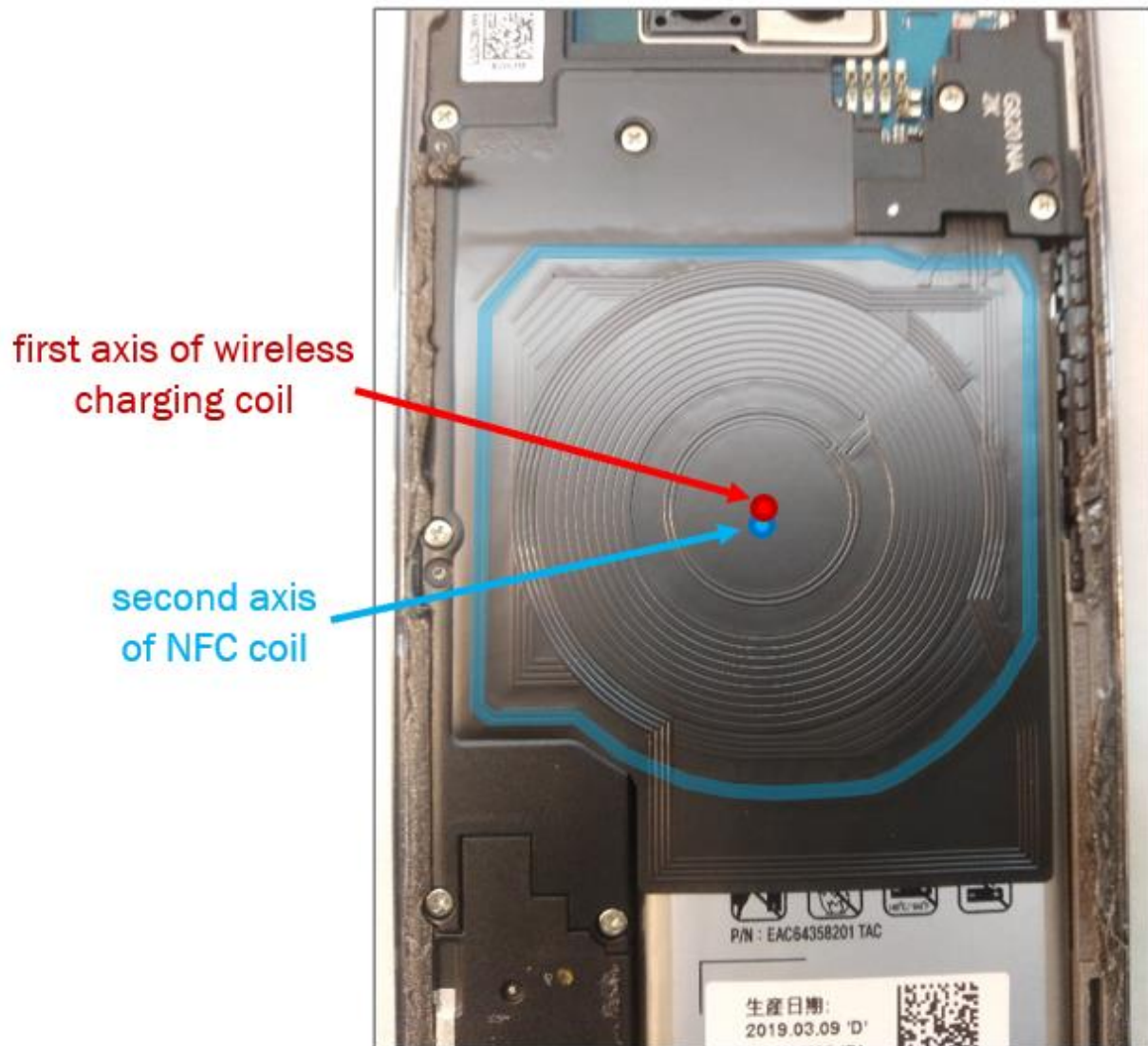


136. The Accused Products comprise a Near Field Communication (NFC) antenna included in the housing and including an NFC coil formed of a wound electrical wire. For example,

the LG G8 shown below includes an NFC antenna, which includes a wound electrical wire NFC coil:



137. The Accused Products are configured such that a first axis of the wireless charging coil is different from a second axis of the NFC coil. For example, the z-axis around which the wireless charging coil is wound is different from the z-axis around which the NFC coil is wound for the LG G8, as shown below:



138. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

139. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

140. At a minimum, LG has known of the '082 patent at least as early as the service date of the original complaint in this matter on April 16, 2020. Further, on information and belief, LG has known of the '082 patent at least as early as the filing date of the original complaint. In addition, LG has known about the '082 patent since at least April 14, 2020, when LG received a letter

providing notice of its infringement. Further, on information and belief, LG's conduct before the United States Patent and Trademark Office ("USPTO") and foreign offices, suggest that it may have been aware of the '082 patent prior to receiving the letter. For example, in prosecuting U.S. Patent No. 9,553,476, LG disclosed the family associated with the '082 patent to the USPTO.

141. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '082 patent to directly infringe one or more claims of the '082 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '082 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g.*, Global Network, LG ELECTRONICS INC., <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that "[t]he company has been very active in the [North American]

region as an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

142. Upon information and belief, despite having knowledge of the ’082 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’082 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG’s infringing activities relative to the ’082 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

143. SPV has been damaged as a result of LG’s infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VII

(INFRINGEMENT OF U.S. PATENT NO. 9,954,396)

144. Plaintiff incorporates paragraphs 1 through 143 herein by reference.

145. SPV is the assignee of the ’396 patent, entitled “Electronic Device Including Non-Contact Charging Module,” with ownership of all substantial rights in the ’396 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

146. The ’396 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The ’396 patent issued from U.S. Patent Application No. 15/051,408.

147. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '396 patent in this judicial district and elsewhere in Texas and the United States.

148. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See Cell Phones*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to "Shop by Carrier/Network" heading). LG's mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g., LG V40 ThinQ™ Verizon Wireless*, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

149. LG directly infringes the '396 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '396 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '396 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '396 patent through its direct involvement in the activities of its subsidiaries,

including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '396 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

150. The Accused Products infringe the '396 patent including, at least, claim 1. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G8. The Accused Products are electronic devices having a communication capability. For example, the Accused Products have the ability to communicate with the cellular network.

151. The Accused products comprise a housing. For example, the LG G8 shown below has a housing:



152. The Accused Products comprise a non-contact charging module housed in the housing and configured to receive electric power through electromagnetic induction. For example, the LG G8 shown below includes a non-contact charging module that is configured to support wireless charging:



BATTERY	
Capacity:	3500 mAh
Type:	Li - Polymer, Not user replaceable
Charging:	Qualcomm Quick Charge 3.0, USB Power Delivery, <u>Qi wireless charging</u>

https://www.phonearena.com/phones/LG-G8-ThinQ_id11095

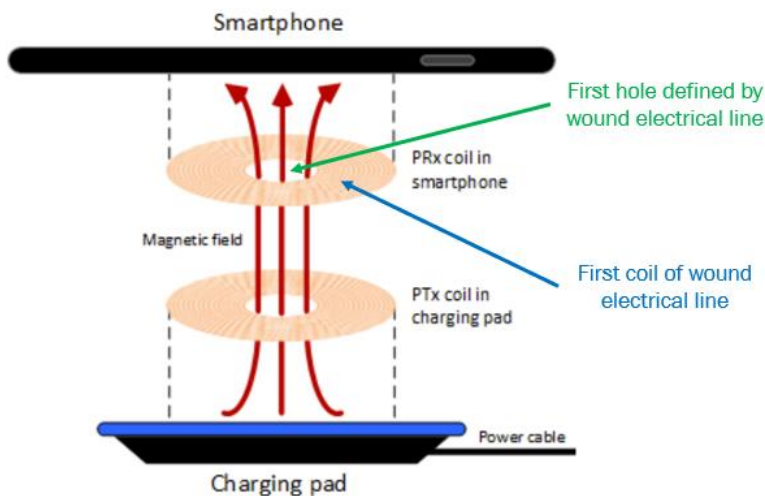
3 How Qi wireless power transfer works

The Qi wireless power transfer system uses magnetic induction to transfer power to a power receiver (PRx) subsystem contained within the mobile device when it is placed on top of a power transmitter (PTx).

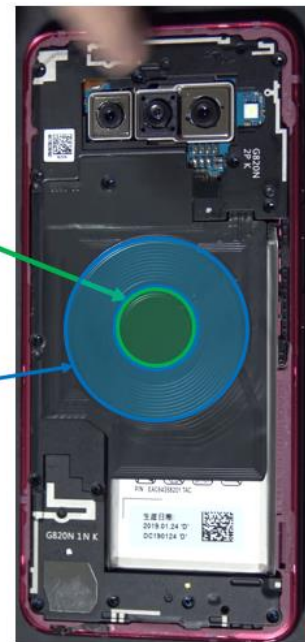
WPC - Introduction to the Power Class 0 Specification v. 1.2.3

153. The non-contact charging module in the Accused Products includes a first coil comprised of an electrical line wound to define a first hole. For example, the LG G8 shown below includes a non-contact charging module with a first coil comprised of an electrical line wound to define a first hole:

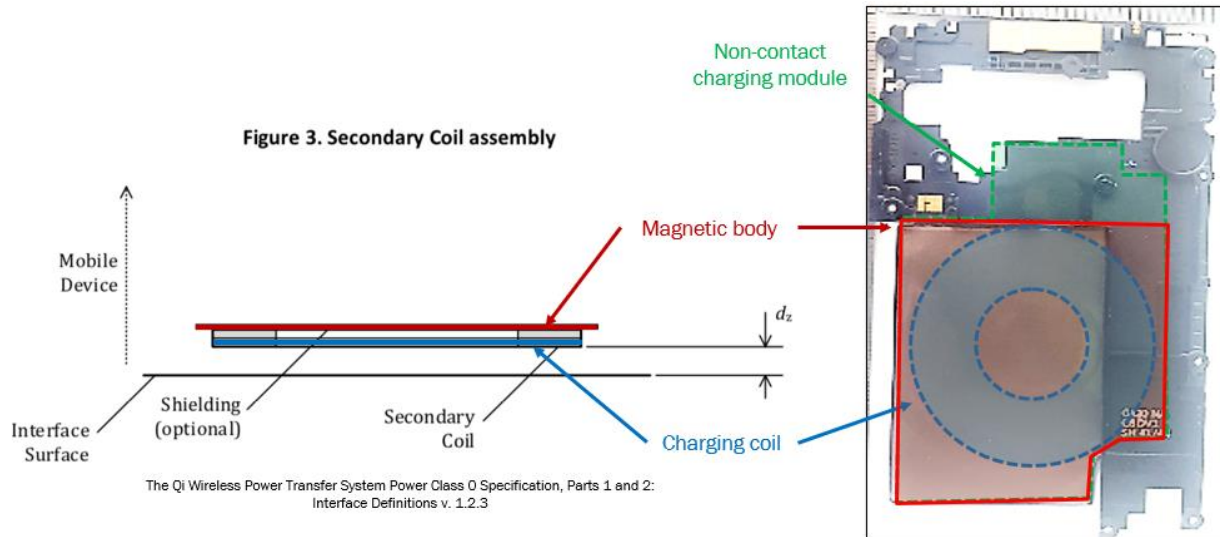
Figure 6. Qi wireless power transfer using magnetic induction



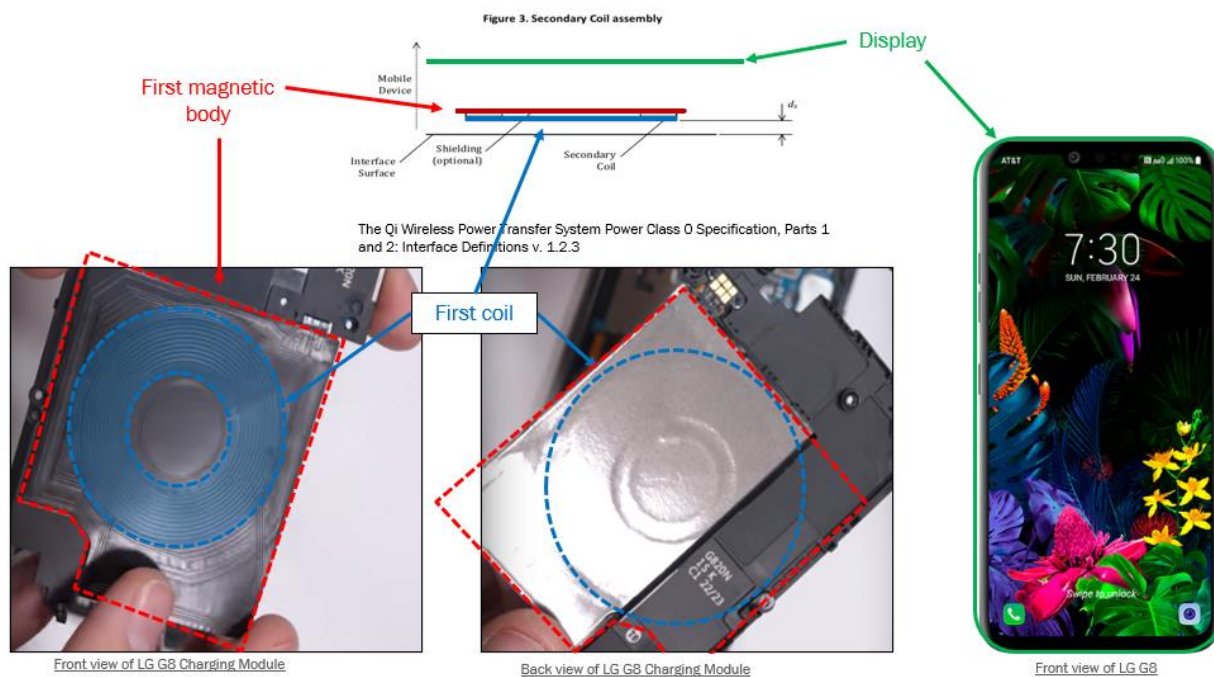
WPC - Introduction to the Power Class 0 Specification v. 1.2.3



154. The non-contact charging module in the Accused Products includes a first magnetic body opposing the first coil. For example, the LG G8 shown below includes a non-contact charging module with a magnetic body opposing the first coil:

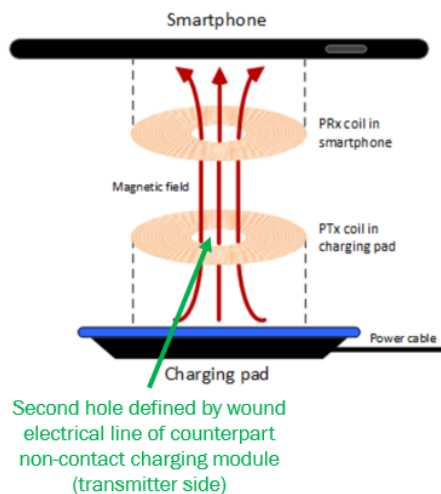


155. The Accused Products comprise a display placed such that the first magnetic body is interposed between the display and the first coil. For example, the LG G8 shown below is configured such that the magnetic body sits between the display and the first coil:



156. The non-contact charging module in the Accused Products is structured to align with a counterpart non-contact charging module including a second hole. For example, non-contact charging module of the LG G8 is structured to align with a counterpart non-contact charging module, e.g., a Qi power transmitter, which includes a second hole when designed according to the Qi specification.

Figure 6. Qi wireless power transfer using magnetic induction



4.3 Charging area

The power transfer system in the Power Class 0 specification is based on a single coil in the power transmitter that has an outer diameter of 50 mm (2 in), and a coil in the power receiver that has an outer diameter of 40 mm (1.6 in). Actual power transmitter and power receiver implementations may deviate from these dimensions, as long as they are able to pass all relevant Qi compliance tests.

In a typical use case, a mobile device is positioned on the top surface of a charger with the power transmitter coil and the power receiver coil aligned. Ideally, the coils should be perfectly aligned for maximum power transfer, but misaligning the coils by several millimeters mm (about ¼ inch) should not be a problem.

4.4 Coupling requirements

Coupling occurs when current changes in one coil creates a voltage in the other coil via magnetic induction. Coupling is highest—with the most efficient power transfer—when:

- the PTx and PRx use exactly the same coil
- the PTx and PRx are perfectly aligned
- the distance between the coils is small (less than the diameter of the coils)
- the coils are externally shielded by ferrite

Conditions that decrease coupling (and power transfer efficiency) include different power transmitter/power receiver coil sizes and shapes, coil misalignment, excessive distance between coils, and the presence of foreign objects on the power transmitter.

WPC - Introduction to the Power Class 0 Specification v. 1.2.3

157. The second hole of the counterpart non-contact charging module includes a magnet in a first case and the second hole does not include the magnet in a second case, and the non-contact charging module of the Accused Products, in operation, aligns with the counterpart non-contact charging module either in the first case or in the second case. For example, the Qi specification defines multiple power transmitter designs intended to transfer power to Qi receivers, such as the non-contact charging module in the LG G8:

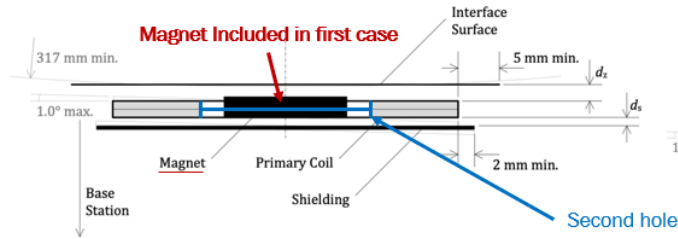


Figure 3-3: Primary Coil assembly of Power Transmitter design A1

WPC - System Description Wireless Power Transfer Volume I: Low Power Part 1: Interface Definition v. 1.01

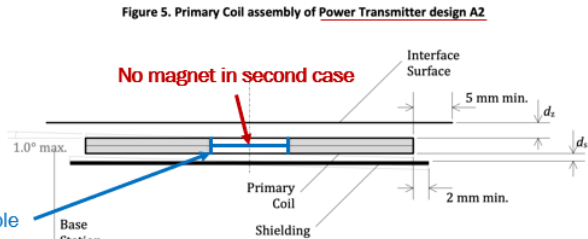


Figure 5: Primary Coil assembly of Power Transmitter design A2

WPC - The Qi Wireless Power Transfer System Power Class 0 Specification, Part 4: Reference Designs v. 1.2.3

NOTE Power Receivers that use thin magnetic Shielding have been found to experience reduced performance on Power Transmitters that contain a permanent magnet in or near the Active Area. Such Power Receivers may exhibit, for example, less positioning freedom and/or a longer charging time. For this reason, Power Transmitter designs A1, A5, and A9 have been deprecated as of version 1.2 of the Qi Power Class 0 Specification.

The remaining Power Transmitter designs provided in this part 4 of the Qi Power Class 0 Specification do not use a permanent magnet. Product implementations based on these designs that include a permanent magnet in or near the Active Area are not compliant with this specification.

WPC - The Qi Wireless Power Transfer System Power Class 0 Specification, Part 4: Reference Designs v. 1.2.3

158. The non-contact charging module in the Accused Products in operation, aligns with the counterpart non-contact charging module either in the first case or in the second case. For example, regardless of whether the power transmitter has a magnet, a Qi non-contact charging module of a receiver, such as the one in the LG G8, will align with a counterpart non-contact charging module of a transmitter during operation.

4.3 Charging area

The power transfer system in the Power Class 0 specification is based on a single coil in the power transmitter that has an outer diameter of 50 mm (2 in), and a coil in the power receiver that has an outer diameter of 40 mm (1.6 in). Actual power transmitter and power receiver implementations may deviate from these dimensions, as long as they are able to pass all relevant Qi compliance tests.

In a typical use case, a mobile device is positioned on the top surface of a charger with the power transmitter coil and the power receiver coil aligned. Ideally, the coils should be perfectly aligned for maximum power transfer, but misaligning the coils by several millimeters mm (about ¼ inch) should not be a problem.

4.4 Coupling requirements

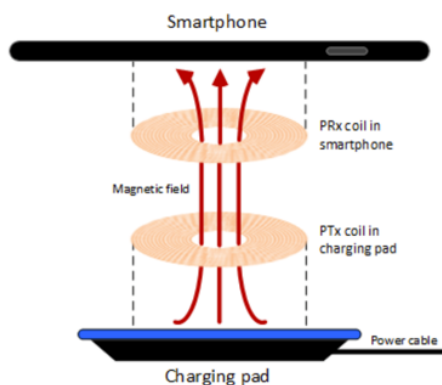
Coupling occurs when current changes in one coil creates a voltage in the other coil via magnetic induction. Coupling is highest—with the most efficient power transfer—when:

- the PTx and PRx use exactly the same coil
- the PTx and PRx are perfectly aligned
- the distance between the coils is small (less than the diameter of the coils)
- the coils are externally shielded by ferrite

Conditions that decrease coupling (and power transfer efficiency) include different power transmitter/power receiver coil sizes and shapes, coil misalignment, excessive distance between coils, and the presence of foreign objects on the power transmitter.

WPC - Introduction to the Power Class 0 Specification v. 1.2.3

Figure 6. Qi wireless power transfer using magnetic induction



159. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

160. At a minimum, LG has known of the '396 patent at least as early as the filing date of this amended complaint. Further, on information and belief, LG's conduct before the United States Patent and Trademark Office ("USPTO") and foreign offices, suggest that it may have been aware of the '396 patent prior to receiving the letter. For example, in prosecuting U.S. Patent No. 9,553,476, LG disclosed the family associated with the '396 patent to the USPTO. In addition, LG has known about the '396 patent since at least May 7, 2020, when LG received a letter providing notice of its infringement.

161. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '396 patent to directly infringe one or more claims of the '396 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '396 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless

charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network, LG ELECTRONICS INC.*, <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that “[t]he company has been very active in the [North American] region as an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

162. Upon information and belief, despite having knowledge of the ’396 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’396 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG’s infringing activities relative to the ’396 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

163. SPV has been damaged as a result of LG’s infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VIII

(INFRINGEMENT OF U.S. PATENT NO. 10,230,272)

164. Plaintiff incorporates paragraphs 1 through 163 herein by reference.

165. SPV is the assignee of the ’272 patent, entitled “Mobile Terminal Including Wireless Charging Coil and Magnetic Sheet Having Inwardly Receding Portion,” with ownership

of all substantial rights in the '272 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

166. The '272 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '272 patent issued from U.S. Patent Application No. 15/882,829.

167. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '272 patent in this judicial district and elsewhere in Texas and the United States.

168. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See* Cell Phones, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to “Shop by Carrier/Network” heading). LG’s mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g.*, LG V40 ThinQ™ Verizon Wireless, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

169. LG directly infringes the '272 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '272 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused

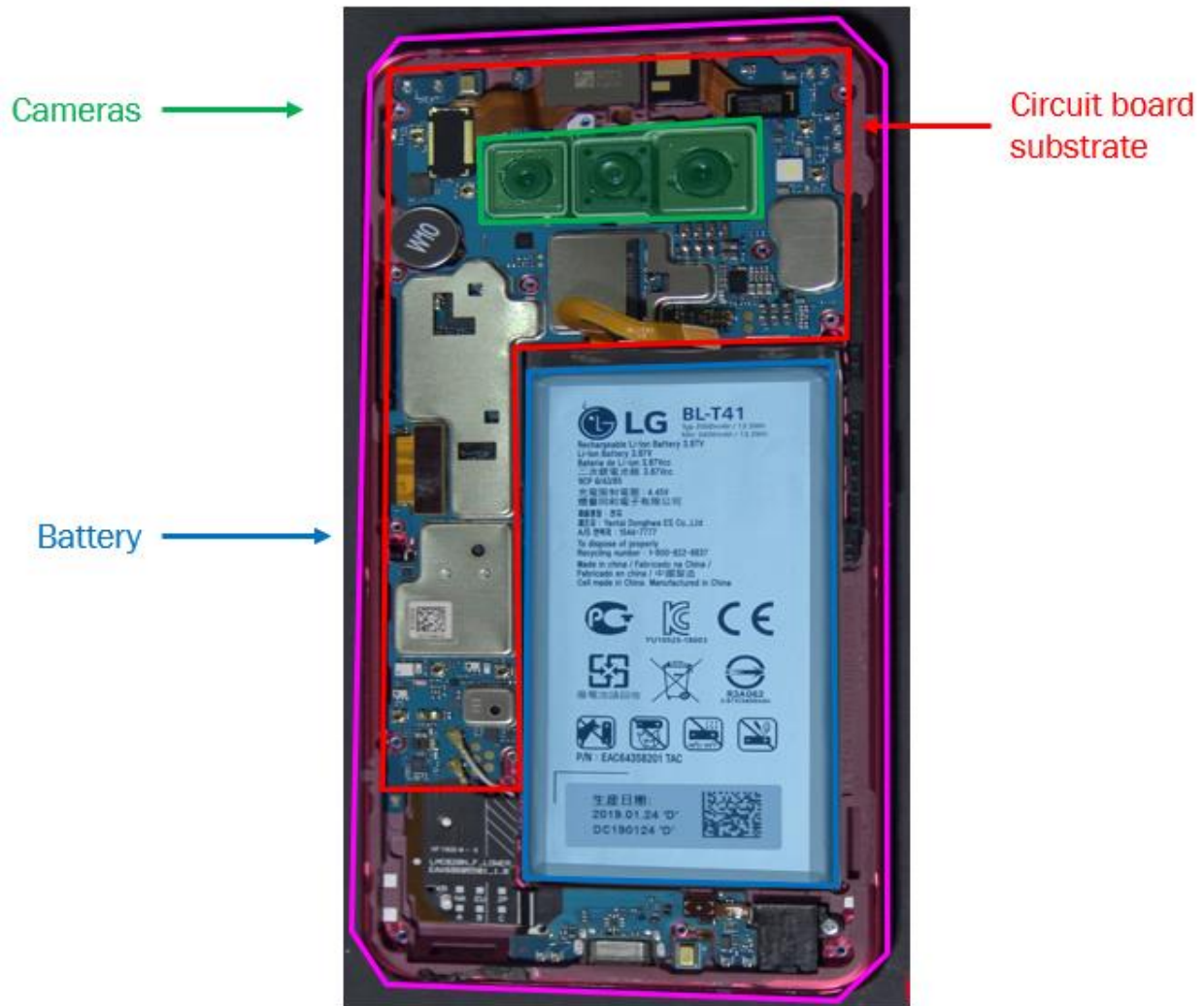
Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '272 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '272 patent through its direct involvement in the activities of its subsidiaries, including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '272 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

170. The Accused Products infringe the '272 patent including, at least, claim 1. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G8. The Accused Products are mobile terminals. For example, the LG G8 is a cellular phone.

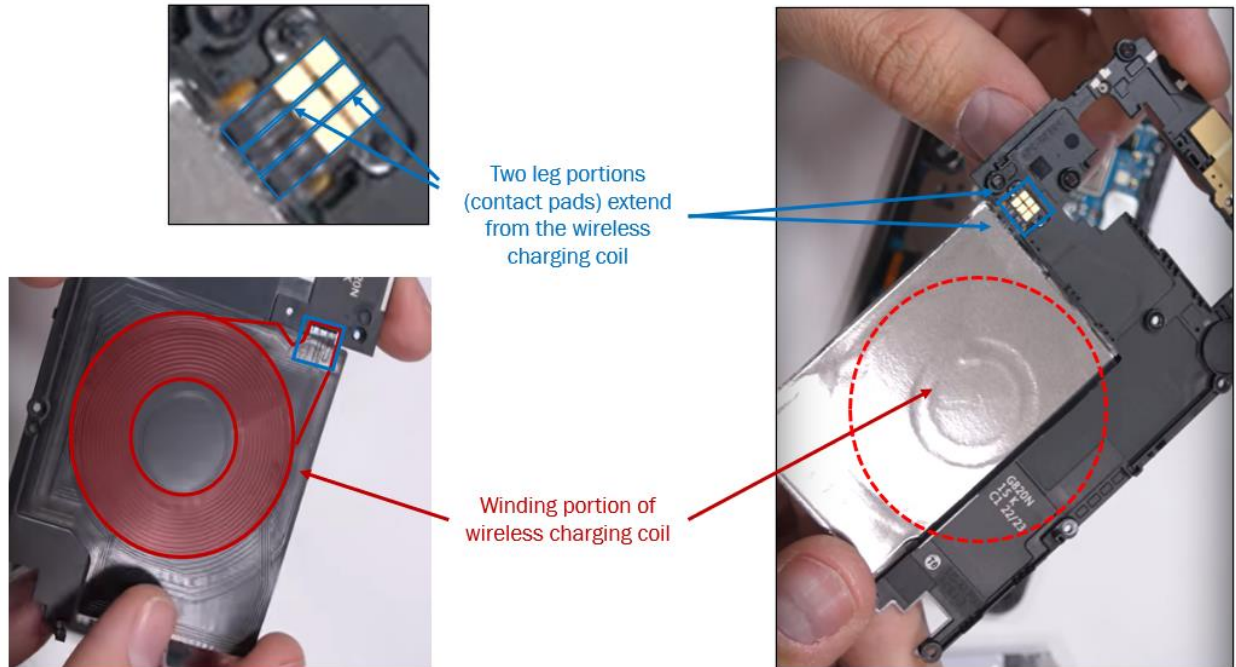
171. The Accused products comprise a housing having a rectangular shape in a plan view of the housing defined by two short sides along a lateral direction and two long sides along a longitudinal direction. For example, the LG G8 shown below includes a housing defined by two short sides along a lateral direction and two long sides along a longitudinal direction:



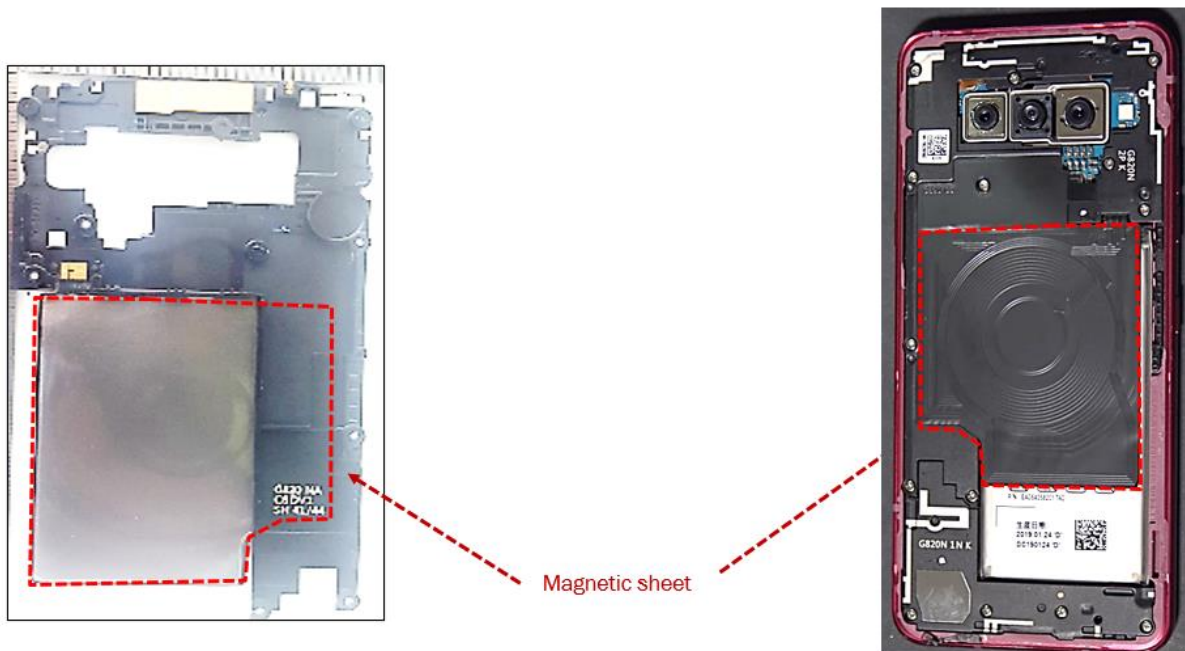
172. The Accused Products comprise a camera, a battery, and a circuit board included in the housing. For example, the LG G8 includes a camera, a battery, and a circuit board included in the housing:



173. The Accused Products comprise a wireless charging coil arranged in the housing and including a winding portion and two leg portions. For example, the LG G8 contains the wireless charging coil shown below:

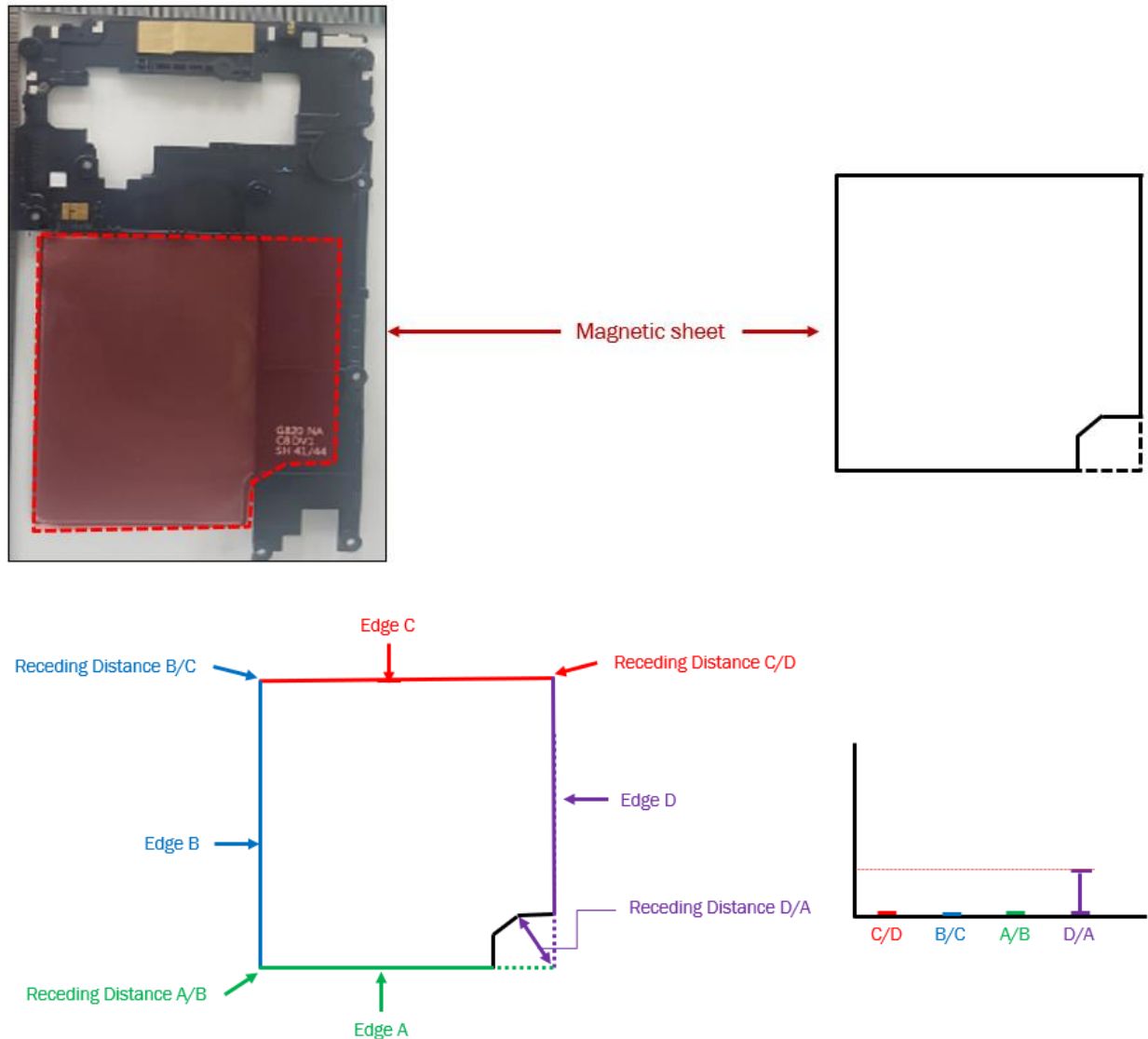


174. The Accused Products comprise a magnetic sheet arranged in the housing. For example, the LG G8 shown below includes the following magnetic sheet:



175. Within the Accused Products, the magnetic sheet has a rectangular shape including four edges and four corner portions, each pair of adjacent edges forms a virtual corner, each corner

portion is receded inwardly from its corresponding virtual corner by a receding distance, and one of four receding distances is greater than other three of the four receding distances. For example, the LG G8 contains the magnetic sheet shown below, in which one of the four receding distances is greater than the other three of four receding distances (e.g., receding distance D/A is greater than the other receding distances):



176. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

177. At a minimum, LG has known of the '272 patent at least as early as the filing date of this amended complaint. In addition, LG has known about the '272 patent since at least May 7, 2020, when LG received a letter providing notice of its infringement.

178. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '272 patent to directly infringe one or more claims of the '272 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '272 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network, LG ELECTRONICS INC.*, <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that “[t]he company has been very active in the [North American] region as an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

179. Upon information and belief, despite having knowledge of the '272 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '272 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG's infringing activities relative to the '272 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

180. SPV has been damaged as a result of LG's infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IX

(INFRINGEMENT OF U.S. PATENT NO. 10,574,090)

181. Plaintiff incorporates paragraphs 1 through 180 herein by reference.

182. SPV is the assignee of the '090 patent, entitled "Mobile Terminal Including Wireless Charging Coil and Magnetic Sheet Having Inwardly Receding Portion," with ownership of all substantial rights in the '090 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

183. The '090 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '090 patent issued from U.S. Patent Application No. 16/359,590.

184. LG has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '090 patent in this judicial district and elsewhere in Texas and the United States.

185. Upon information and belief, LG designs, develops, manufactures, assembles and markets mobile phones and devices configured to connect to wireless cellular networks. *See* Cell Phones, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones> (last visited Mar. 3, 2020) (scroll to “Shop by Carrier/Network” heading). LG’s mobile phones are further configured with customer-desired features such as advanced image processing, wireless charging, AI engines, and multimedia capabilities, including audio playback. *See, e.g.,* LG V40 ThinQ™ Verizon Wireless, LG ELECTRONICS INC., <https://www.lg.com/us/cell-phones/lg-LM-V405UAB-verizon-v40> (last visited Mar. 5, 2020) (describing the features of the LG V40 Thin Q).

186. LG directly infringes the '090 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '090 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, LG sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '090 patent. *See, e.g., Lake Cherokee Hard Drive Techs., LLC v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). Furthermore, LG directly infringes the '090 patent through its direct involvement in the activities of its subsidiaries,

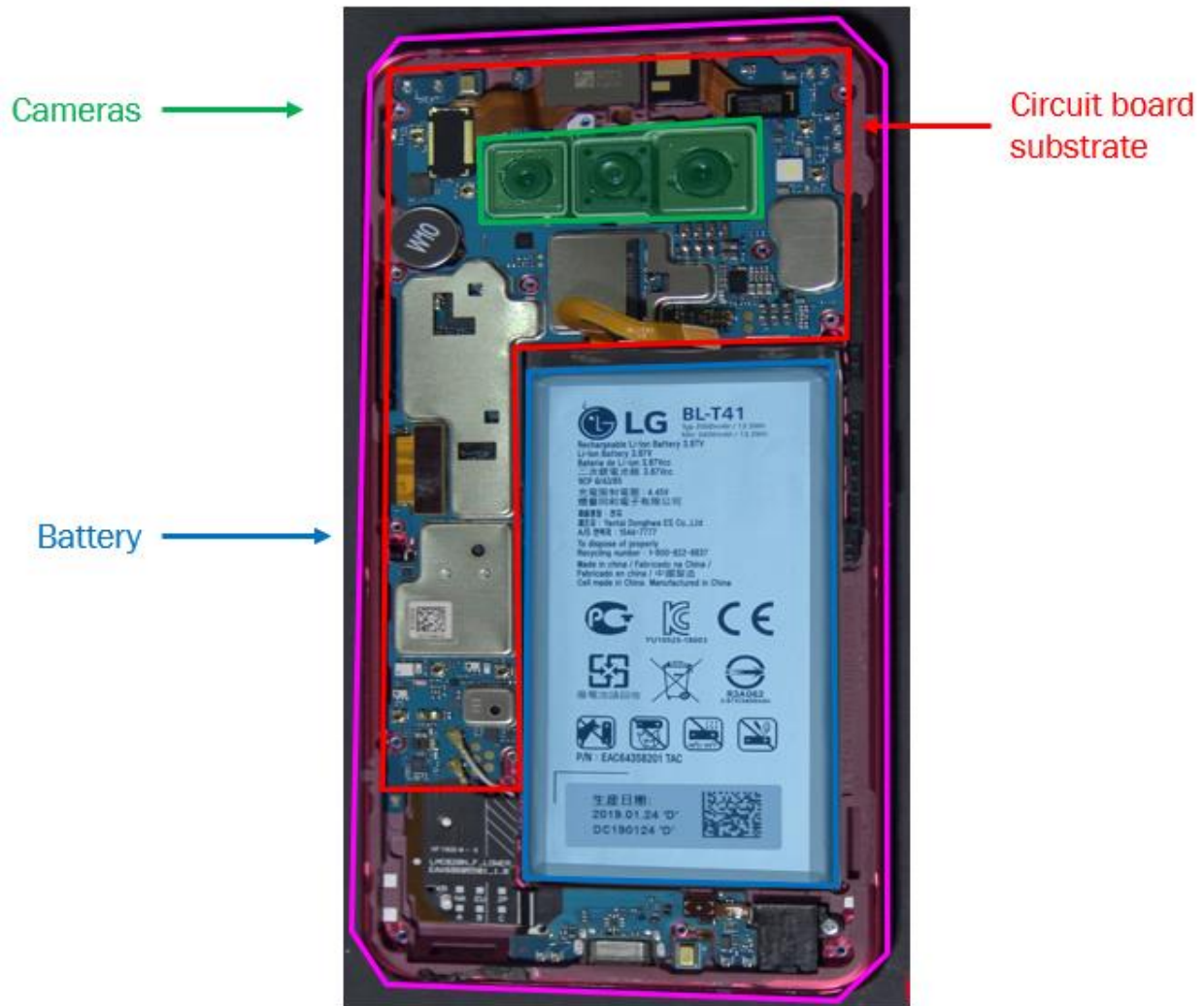
including LG USA, including by selling and offering for sale the Accused Products directly to LG USA and importing the Accused Products into the United States for LG USA. Upon information and belief, LG USA conducts activities that constitute direct infringement of the '090 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. For example, and upon information and belief, LG offers for sale, sells, and imports the Accused Products within the U.S. to, for example, its distributors, customers, subsidiaries, importers, and/or consumers. Further, LG is vicariously liable for this infringing conduct of LG USA (under both the alter ego and agency theories) because, as an example and upon information and belief, LG and LG USA are essentially the same company, and LG has the right and ability to control LG USA's infringing acts and receives a direct financial benefit from LG USA's infringement.

187. The Accused Products infringe the '090 patent including, at least, claim 1. The Accused Products include mobile phones and devices that have wireless charging capability, including, but not limited to, the LG G8. The Accused Products are mobile terminals. For example, the LG G8 is a cellular phone.

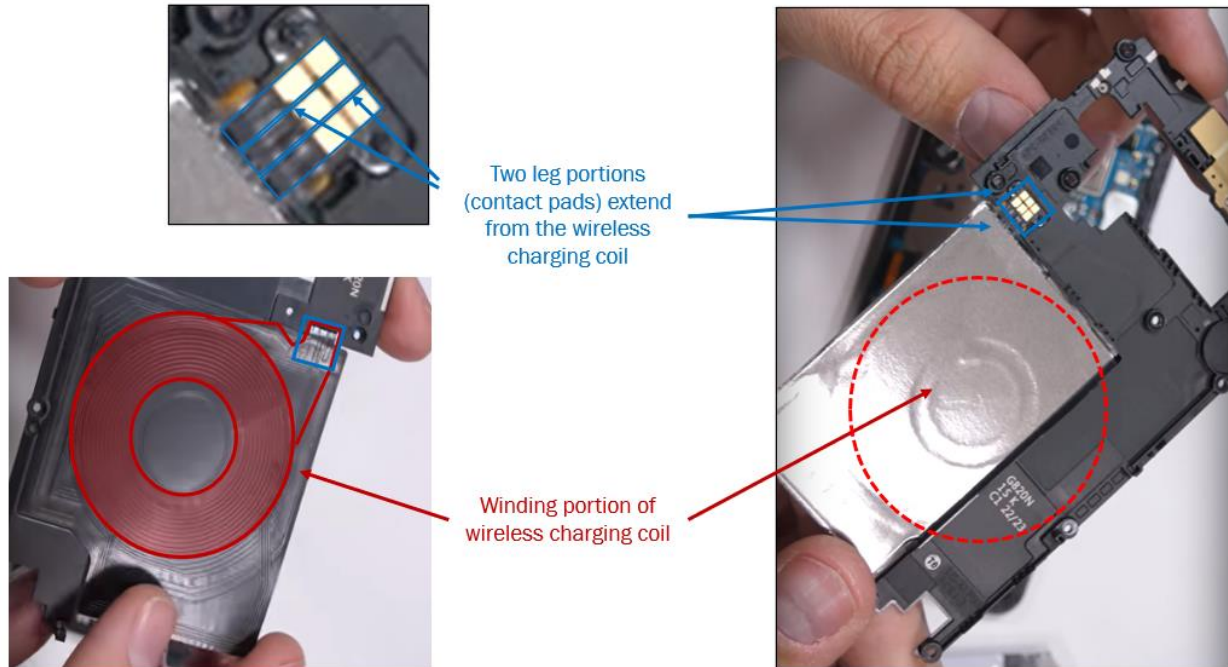
188. The Accused products comprise a housing having a rectangular shape in a plan view of the housing defined by two short sides along a lateral direction and two long sides along a longitudinal direction. For example, the LG G8 shown below includes a housing defined by two short sides along a lateral direction and two long sides along a longitudinal direction:



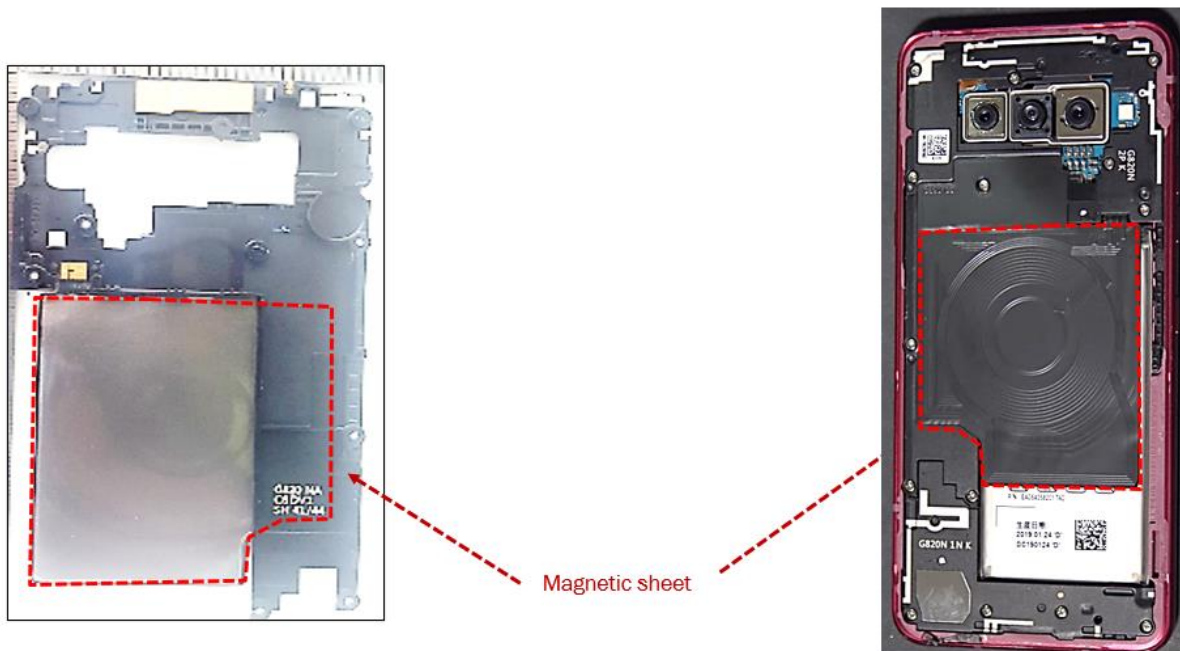
189. The Accused Products comprise a camera, a battery, and a circuit board included in the housing. For example, the LG G8 includes a camera, a battery, and a circuit board included in the housing:



190. The Accused Products comprise a wireless charging coil arranged in the housing and including a winding portion and two leg portions. For example, the LG G8 contains the wireless charging coil shown below:

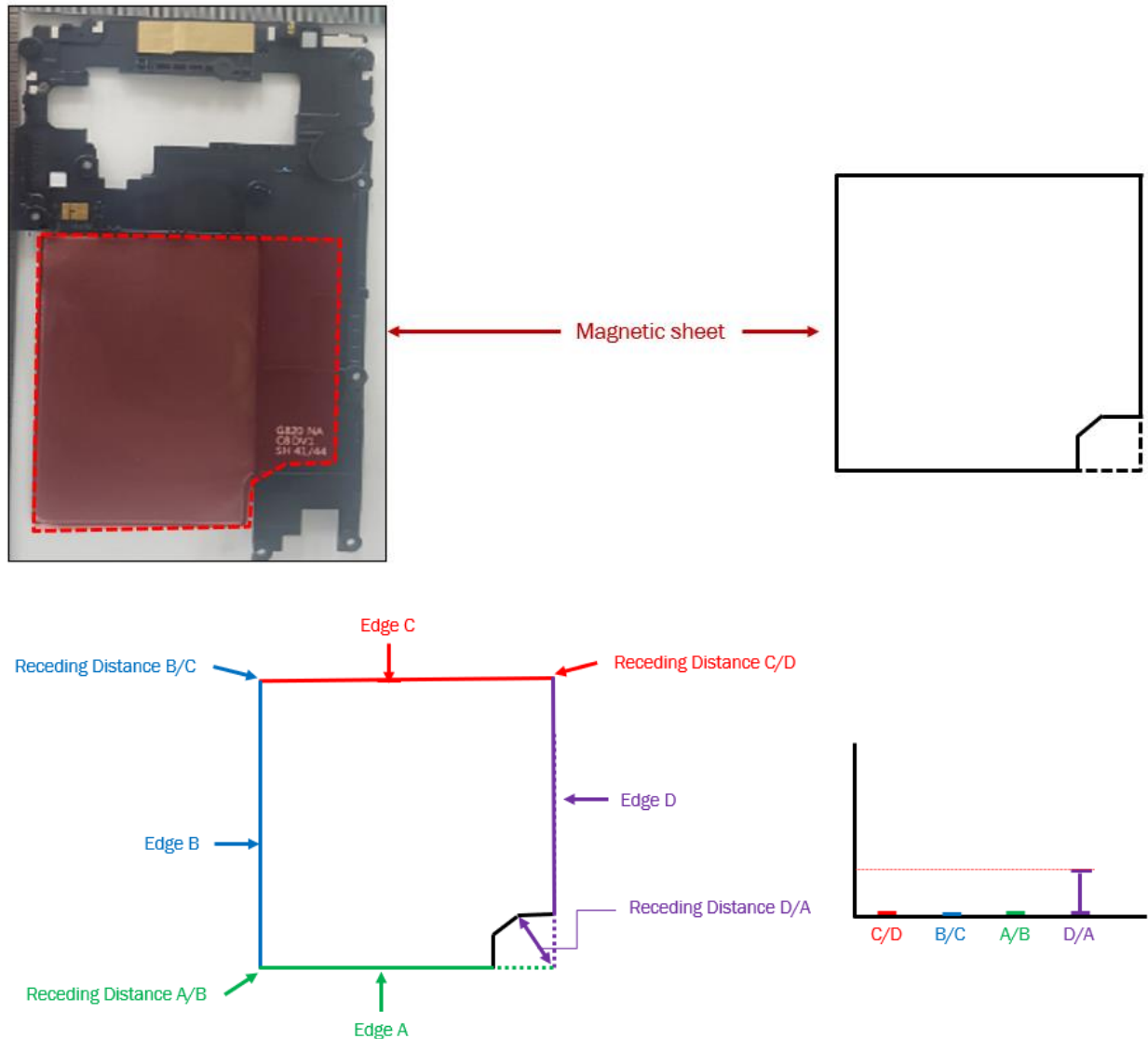


191. The Accused Products comprise a sheet arranged in the housing. For example, the LG G8 shown below includes the following sheet:



192. Within the Accused Products, the sheet has a rectangular shape including four edges and four corner portions, each pair of adjacent edges forms a virtual corner, each corner portion is

receded inwardly from its corresponding virtual corner by a receding distance, and one of four receding distances is greater than other three of the four receding distances. For example, the LG G8 contains the sheet shown below, in which one of the four receding distances is greater than the other three of four receding distances (e.g., receding distance D/A is greater than the other receding distances):



193. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

194. At a minimum, LG has known of the '090 patent at least as early as the filing date of this amended complaint. In addition, LG has known about the '090 patent since at least May 7, 2020, when LG received a letter providing notice of its infringement.

195. Upon information and belief, since at least the above-mentioned date when LG was on notice of its infringement, LG has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '090 patent to directly infringe one or more claims of the '090 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, LG does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '090 patent. Upon information and belief, LG intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing wireless charging features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States. *See, e.g., Global Network, LG ELECTRONICS INC.*, <http://www.lgnewsroom.com/global-network/north-america/> (last visited Mar. 3, 2020) (stating that “[t]he company has been very active in the [North American] region as an exemplary model of globalization with success in local plants, strategic alliances, and mergers and acquisitions” and listing LG’s U.S.-based subsidiaries).

196. Upon information and belief, despite having knowledge of the '090 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '090 patent, LG has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. LG's infringing activities relative to the '090 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

197. SPV has been damaged as a result of LG's infringing conduct described in this Count. LG is, thus, liable to SPV in an amount that adequately compensates SPV for LG's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

CONCLUSION

198. Plaintiff SPV is entitled to recover from LG the damages sustained by Plaintiff as a result of LG's wrongful acts, and willful infringement, in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

199. Plaintiff has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action. The circumstances of this dispute may give rise to an exceptional case within the meaning of 35 U.S.C. § 285, and Plaintiff is entitled to recover its reasonable and necessary attorneys' fees, costs, and expenses.

JURY DEMAND

200. Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

201. Plaintiff respectfully requests that the Court find in its favor and against LG, and that the Court grant Plaintiff the following relief:

1. A judgment that LG has infringed the Asserted Patents as alleged herein, directly and/or indirectly by way of inducing infringement of such patents;
2. A judgment for an accounting of all damages sustained by Plaintiff as a result of the acts of infringement by LG;
3. A judgment and order requiring LG to pay Plaintiff damages under 35 U.S.C. § 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;
4. A judgment and order requiring LG to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;
5. A judgment and order finding this to be an exceptional case and requiring LG to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and
6. Such other and further relief as the Court deems just and equitable.

Dated: May 7, 2020

Respectfully submitted,

/s/ Patrick J. Conroy

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